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ORIGINAL LECTURES.

THE CEREBRAL PALSIES OF CHILDREN.

Clinical Lectures delivered at the Infirmary for Nervous Diseases.

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LECTURE V.

PATHOLOGY AND TREATMENT.

PATHOLOGY.—Varied as is the anatomical condition, the lesions have this in common—interference with the motor centres or with the conducting paths of the cerebrum. In reviewing a large number of post-mortem records, or in studying such a series of brains as that prepared by Dr. Wilmarth, at Elwyn, we are impressed, on the one hand, with the extent to which sclerotic and other changes may exist without symptoms if the motor areas are spared, and, on the other hand, with the degree of permanent disability which may exist with even slight affection of this region. Our knowledge is so limited to the appearances and states years after the onset of the symptoms, the final results of initial processes long past, that we are scarcely in a position to discuss accurately, in all its aspects, the pathology of this interesting group of cases. It is something, however, to get an outline for our ignorance and to ascertain in which direction facts are needed to sustain, or, it may be, to upset our theories.

A certain number of the cases of hemiplegia in children are due to *hemorrhage* from causes identical with those which prevail in the adult, and I have given illustrative instances of true apoplexy with laceration of the cerebral substance; but we may conclude safely, I think, that hemorrhage is not the common cause and accounts for a very small percentage. A small proportion of the cases of hemiplegia comes under the designation of birth palsies, as we have history of persistence of the paralysis from birth, and of the occurrence of difficult labor, often necessitating the application of forceps. In the cases of birth palsy which result usually in bilateral hemiplegia or paraplegia, the evidence points strongly to meningeal hemorrhage as one of the chief causes of the disorder. The great majority of these, as we have seen, present, at birth, one of two conditions, asphyxia or convulsions. The children are resuscitated only after prolonged attempts at artificial respiration; more commonly convulsions occur, either immediately after birth, or within the first ten days of life. Facts have been gradually accumulated to show that hemorrhage, usually meningeal, is a very frequent condition in children dying shortly after birth of asphyxia or convulsions, and as the birth palsies almost invariably have this history it seems reasonable to conclude that, in the cases which recover and subsequently present signs of motor disturbance, a similar, though less intense, lesion has existed.

Apoplexia neonatorum is by no means an uncommon event. Little fully understood its importance and quotes from Cruveilhier, Evory Kennedy, Hecker and Weber to show the occurrence of meningeal hemorrhage and capillary extravasations in newborn children. In 1880 Litzmann[1] communicated the results of the examination of 161 newborn children, in 81 of whom the spinal canal was exposed. There were 35 instances of meningeal hemorrhage, in 19 the extravasation being in considerable amount. The exudation existed in both cerebral and spinal meninges.

Parrot,[2] in 34 cases of cerebral hemorrhage in the newborn, found 5 in which the blood was in the cavity of the arachnoid and 26 in the subarachnoid space. In a large proportion of the cases the extravasation was bilateral. This author makes no allusion to the association of the lesion with abnormal labor.

Dr. Sarah J. McNutt has reported ten cases[3] and her paper is very convincing as to the frequent association of this condition with abnormal labor and with asphyxia and convulsions in the newborn. It may occur when the parturition has been normal, and may be deferred some days, or even weeks, as in the following case, which occurred in Dr. Parvin's Wards at the Philadelphia Hospital, and the specimens from which I saw with Dr. Stahl.

Child æt. six weeks, mother single; labor normal. Remained healthy until the forty-fifth day, when at 8 A.M., it had a convulsion, at first on the right side and finally general. Convulsions were repeated through the day and an ecchymotic rash appeared on trunk and extremities. Death at 10 P.M. The post-mortem showed extensive meningeal hemorrhage, a large clot over the cortex, particularly on the left side. There was much more blood in the left than in the right Sylvian fissure, and it extended under the frontal convolutions; it looked as if the bleeding had begun here, but the most careful examination of the vessels showed no changes in the arteries or thrombi in the veins. There were clots also in the posterior and middle fossæ, and a uniform sheeting of coagulated blood extended beneath the spinal dura.

I saw a second case, this winter, at the Philadelphia Hospital, and I am indebted to Dr. Hirst, who made the autopsy in both these cases, for the following notes: Case of twins; first child delivered with forceps—head presentation. The second child presented the breech, and there was great difficulty in the extraction of the head, required much force. Twenty minutes after birth, left lateral convulsions occurred and were repeated at intervals. The child lived forty-eight hours, having become intensely anæmic. The post-mortem showed

[1] Archiv f. Gynäkologie, Bd. xvi.

[2] Clinique des Nouveau-nés, Paris, 1877.

[3] American Journal of Obstetrics, 1885.

the viscera normal. The brain, in places, was remarkably soft, the tissue almost diffluent. A large clot existed beneath the dura mater on the right side, very thick over the cortex. It dipped into the fissures and sulci and extended down the cord. About the middle of the longitudinal sinus there was an irregular laceration, several lines in length.

The extravasation has in many cases been thickest over the motor areas, and from what we know of the changes which time may effect in effused clot, there is nothing inconsistent in the belief that sclerosis from compression or porencephalus from destruction might ultimately result. Gowers advocates this view in the case of the birth palsies, which, indeed, he considers in his work under the heading of "Infantile Meningeal Hemorrhage." Probably all the cases cannot be assigned to this cause, and I think, with Jacobi,[1] that certain of them may be due to fœtal meningo-encephalitis. Certainly in Ashby's case,[2] in which, in a child twenty-two months old, the cortex was smooth, without a trace of convolutions, the sclerosis must have begun during embryonic life.

The frequency of spinal hemorrhage renders it not improbable that some of the cases of spastic paraplegia may be due to this cause; and Ross suggests that as traction in feet presentation has been known to tear the cord, slighter degrees might injure the pyramidal tracts, and lead to a sclerosis.

We have then in the spastic diplegia, and in a few cases of hemiplegia—the true birth palsies—information which enables us to assign to hemorrhage an important *rôle*. More positive knowledge may ultimately be obtained by the dissection of cases at different ages after the onset.

When we turn to the cases of infantile hemiplegia, which come on during the first two or three years of life, we are met at once with conflicting theories. It is well to bear in mind that we are called upon to explain the mode of origin of sclerosis and porencephalus, the two conditions present in the great majority of the cases. A certain number of cases of infantile hemiplegia are due to hemorrhage, to embolism and aneurism, a few to tumor, as glioma or chronic tubercle; but, as we have seen, these form a fractional part. We require to know the pathological process lying at the basis of the convulsive attacks with coma, which come on suddenly, or after a slight febrile movement, frequently succeed an infectious disease, and leave a hemiplegia with too often its disastrous sequences—epilepsy and imbecility. In a large proportion of the cases the disease is such a clinical unit, with symptoms as marked and definite as those of infantile spinal paralysis, that we might expect a corresponding uniformity in the anatomical lesion. Unfortunately we are, so far as I can ascertain, entirely without information upon the state of the brains of children dying during or shortly after the attack; and the question resolves itself into an explanation of the conditions most commonly met with years after the onset, viz., sclerosis and porencephalus.

A few years ago Strümpell[3] suggested that the lesion was the cerebral counterpart of the infantile spinal palsy, a *poliencephalitis* of the motor areas of the cortex, analogous to the poliomyelitis of the anterior horns. The two affections are very similar in the mode of onset, in the age affected and in the liability to follow one of the infectious diseases. The more frequent occurrence of convulsions and the more prolonged coma might be expected from the seat of the disease. This very plausible and suggestive view has not met with much favor, not so much, I think, as it deserves. Against it has been urged the absence of anatomical facts, but this defect it shares with several theories. I see no improbability in the view; and it is possible that we shall have, ere long, the necessary anatomical facts to support it. The forms of encephalitis which we know: Virchow's encephalitis of the newborn; the miliary encephalitis due to septic causes, such as has been found in diphtheria and in aphthous stomatitis; and the steatosis of Parrot, arise under different circumstances, and do not present the symptoms of these cases of infantile hemiplegia. J. Lewis Smith has suggested[1] that certain of these cases of infantile hemiplegia are due to cortical encephalitis, set up by the poison of cerebro-spinal fever.

The frequency with which the disease is associated with or follows one of the infectious diseases is suggestive. Endocarditis is not rare in scarlet fever, measles and diphtheria, the affections which most commonly precede the hemiplegia, and embolism may account for a certain number of these cases. In diphtheria there may be plugging of the smaller cerebral arteries with micrococci, without the occurrence of endocarditis. There is another way in which the relation of the infectious diseases may be regarded. We know that in certain fevers, typhoid particularly, changes have been met with in the smaller arteries leading to anæmic necrosis in the corresponding districts. This has been worked out in the heart by Landouzy and Siredey,[2] and if it occurs in limited areas of this organ it might also take place in the brain. From what we know of sclerosis in other organs, notably the heart, the *rôle* played by the bloodvessels in the process is all important. Kundrat has already suggested that porencephalus results from an anæmia of definite areas corresponding to arterial distribution, but without arterial lesion. It is difficult to conceive of such a condition, but a widespread endarteritis, similar to, but more extensive than that which is known to induce anæmic necrosis of the heart-muscle might initiate a sclerosis; or, if the obstruction was suddenly effected, and large vessels involved, produce a rapid necrosis, the final changes of which would represent porencephalus. That this latter condition results from vascular obstruction we have evidence in the large defects which are occasionally found in brains of adults, and in the one organ there may be regions of softening in all stages of regressive change. Less abrupt processes in smaller vessels may account for certain of the cases of sclerosis, and the changes which Martin, Sabourin and other French writers have found in the smaller arteries in cirrhotic regions, make it by no means improbable that the cerebral counterpart has also a vascular origin.

Jendrássik and Marie[3] have described vascular lesions in cerebral sclerosis, which they believe to be primary.

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1 Discussion at the Academy of Medicine, New York, January 25, 1888. N. Y. Med. Record, 1888, i.

2 Loc. cit.

3 Loc. cit.

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1 Medical Record, 1887.

2 Revue de Médecine, 1885.

3 Archiv de Physiologie, 1883.

The change is in the perivascular region, which is greatly increased in size and intersected by connective tissue growth, which is in intimate relation with the vessel wall and with the neuroglia. While regarding the periarteritis as the primary change in the cerebral paralysis of children, these authors do not exclude embolic and thrombotic processes in the smaller vessels. They refer also to the connection of these with infectious processes.

In a third way, too, an infectious disease might induce hemiplegia, by causing changes in the cerebral motor centres similar to those which occur in the disseminated myelitis following measles and scarlatina. We have not had until recently much positive knowledge of the latter, but such a condition as Barlow[1] has described in the cord shows the direct influence of the specific poisons on the elements of the gray matter. May not this occur in the motor cells of the cortex as well as those of cord? But here we return to Strümpell's view. The changes in the gray matter are, in most of these instances, necrotic, rather than inflammatory, and the vascular lesion is the primary one. In his researches in sclerosis Adamkiewicz[2] found the destruction of the nerve elements the first step in the process, to which the proliferation of the neuroglia was secondary.

In favor of the embolic theory it may be urged that the affected areas correspond with definite territories. Of porencephalus this is to a great extent true, but not always of sclerosis, which may be most irregularly distributed. I purposely noted, when discussing the morbid anatomy of sclerosis, the districts involved in the ten specimens in the Museum of the Elwyn Institution. The involvement of two or three regions, far apart from each other, the frequency with which the territory of the posterior cerebral artery is the seat of the sclerosis are against embolism as a cause.

Gowers has suggested that the lesion in these cases is, *thrombosis* of the surface *cerebral veins*, a well-recognized condition in children, which sets in with convulsions. Usually there is sinus thrombosis as well. Certainly, there are no veins in the body so favorably situated for the coagulation of blood; "they are roomy in proportion to the amount of blood they carry, they are tortuous and abundantly anastomosing, so that the current of blood is almost reversed at some points and can easily stagnate" (Edes).[3] Gowers quotes a case of Money's in which the thrombosis occurred after scarlet fever. Handford[4] has reported the case of a boy aged five years, in whom the cerebral veins were like whip cords, and there was hemorrhage on the surface of both hemispheres. There was also sinus thrombosis. The symptoms, however, were not those of infantile hemiplegia. Parrot[5] states that this condition is very common and in Plate IV. of his work there is a beautiful illustration of thrombosis of the surface veins with hemorrhage. The advantage of this view is that we are dealing with recognized lesions, of common occurrence in infancy, capable of explaining satisfactorily the symptoms; and yet the proof is lacking, the demonstration of its existence in one of these cases of infantile hemiplegia has still to be made.

[1] Medico-chirurgical Transactions, vol. lxx., 1887.

[2] Neurologisches Centralblatt, 1886.

[3] System of Medicine by American Authors, vol. v. p. 982. Phila., 1886.

[4] British Med. Journal, 1887, i. p. 1098. [5] Loc. cit.

To sum up: Infantile hemiplegia is probably the result of a variety of different processes, of which the most important are:

(1) Hemorrhage, occurring during violent convulsions or during a paroxysm of whooping-cough.[1]

(2) Post-febrile processes: (a) embolic; (b) endo- and peri-arterial changes; and (c) encephalitis.

(3) Thrombosis of the cerebral veins.

There are several problems of interest in connection with the pathology of infantile spastic paraplegia. Of special importance is the condition of the pyramidal tracts in the cord, and the attention of future observers should be directed to this point. In three cases of spastic diplegia and in the one case of spastic paraplegia there was descending degeneration. In Ross's case the cord was normal. In Ashby's case was the change in the pyramidal tract truly a degeneration, or was it not rather arrest of development? Most probably the latter, in connection with a brain the cortex of which was smooth and presented no trace of convolutions. In Ross's case though the cord was said to be normal, yet the anterior pyramids were not more than half the normal size, and the lateral columns were smaller. Alexandra Steinlechner[2] has reported the case of a lad, named Post, æt. six years, helpless from birth. The legs were in equinovarus position, but as there was no note of the condition of the arms, I did not know in which category to place the case; it was probably one of spastic diplegia. Post-mortem, bilateral porencephalus was found; the lateral tracts were undeveloped and did not contain more than one half the normal number of nerve fibres. Hervouet[3] has recorded the case of an idiotic child, æt. three and a half years, without spasms or contractures, in which there was a condition of microcephalus with complete absence of development of the pyramidal tracts in the cord. The motor strands in the cord do not attain their full development until after birth, according to Hervouet not until the third or fourth year. It is a question of no little interest to determine the exact condition of these tracts in cases of diplegia and paraplegia of children. Sharkey[4] states that in cases of congenital absence of the whole or part of the motor centres of the brain, which are accompanied by contracture, the pyramidal tract has proved to be deficient. And yet in Hervouet's cases these strands were undeveloped without any spasm of the muscles. It would really appear then that actual sclerosis of the lateral tracts is not an essential condition of spastic rigidity though present in a great majority of the cases. In the adult in the cases of Schultz,[5] Strümpell[6] and Anna Klumpke,[7] the pyramidal tracts have been found normal in spastic paralysis, and Blocq[8] in his recent monograph acknowledges that contractures may exist without affection of these parts. The problem of rigidity is by no means an easy one to solve. The over-action of the spinal centres seems the most reasonable view, at

[1] Dr. Samuel West reported a case of this kind to the Clinical Society of London last year. Medical Press and Circular, 1887.

[2] Archiv für Psychiatrie, Bd. xvii.

[3] Archives de Physiologie, 3 Series, tome iv, 1884.

[4] Loc. cit., p. 11. [5] Deutsches Archiv f. klin. Med., Bd. xxii.

[6] Archiv f. Psychiatrie, Bd. x.

[7] Dictionnairè Encyclopédique, Art. Tabes Spasmodique. Raymond, 1885.

[8] Les Contractures. Paris, 1888.

one time conditioned by the suppression of the function of the pyramidal tracts, the absence of inhibition, the "let go" theory of Hughlings Jackson, at another possibly excited reflexly, even when the motor strands in cords are intact.

We shall need in future autopsies on cases of spastic paraplegia in children specific details as to the condition of the lateral tracts, and particularly as to degeneration or absence of development. The two conditions might readily be confounded as can be gathered from an examination of the plate which illustrates Hervouet's paper.

TREATMENT.—In the majority of the cases the physician is called at the onset to treat an attack of convulsions or of coma, developing suddenly or after a few days' indisposition, or following, perhaps, one of the fevers. The paralysis is not apparent until the active symptoms have subsided, though if the convulsions are severe and unilateral it may be anticipated. These symptoms demand the bromides with chloral, a calomel purge, cold to the head, and, if necessary, leeches. The cases resemble so closely the ordinary convulsions of infancy associated with teething that the development of so serious a condition as hemiplegia is a great shock to the parents, who are very apt to blame the physician for having done too much or too little. In such an accident following vaccination the doctor is fortunate indeed if he escape unjust criticism. In the birth palsies, unless there are marks of the forceps, the condition of the limbs of the child does not attract attention, and it may be weeks or months before the disability is discovered.

The traumatic cases, such as the three reported, suggest surgical interference, two of them at any rate, as they were doubtless due to hemorrhage; but it is well to remember, in these days of safe surgery, that in children traumatic hemiplegia may sometimes disappear completely in a few days. I reported an instance some years ago[1] of a child, æt. twenty-three months, who had fallen from a balcony, and was admitted to my wards with a large hæmatoma of the scalp, left hemiplegia and coma. The symptoms gradually disappeared and the child made a complete recovery. A case was narrated to me by Dr. Murray Cheston of a child who was tripped by his brother and fell on his head. No external wound and no fracture. Hemiplegia developed, but in a few days disappeared completely and the boy is now quite well.

When the paralysis is established medicines are rarely called for, and the indications are to favor the natural tendency of the hemiplegia to improve and to lessen the rigidity and contractures, and, if necessary, overcome them by mechanical or surgical measures.

While it is impossible to predict, in any given case, to what extent the original palsy will disappear, we can usually expect a return of power in the leg and face, incomplete in the former, often perfect in the latter. In rare instances, two only in the series of one hundred and twenty cases, did the paralysis entirely disappear. The residual palsy is most marked in the upper extremity, and even when the arm is tolerably useful the fingers do not regain the power of delicate movements. Temporary arrest of growth and some degree of atrophy follow invariably, but as the child grows up we rarely see the great discrepancy in size of members which is common after the spinal infantile palsy. To maintain the nutrition of the paralyzed parts we employ warmth, massage and electricity. The temperature of the affected members is usually lowered and the circulation sluggish, so that the limbs should at first be wrapped in cotton-wool, and when the patient begins to make efforts at walking, flannel underclothing should be used. Attention to this apparently minor point should be impressed upon the mothers; it is too often neglected. Massage of the paralyzed muscles should be practised daily. Simple directions should be given to the mother or nurse, in the absence of a professional rubber. The chief point is to manipulate the muscles thoroughly, and I usually order the rubbing to be done with sweet oil, morning and evening for twenty or thirty minutes. I have strong belief in the efficacy of this treatment in keeping up the nutrition of the enfeebled muscles. To be of any service the applications must be continued for months.

Electricity is probably of no service in the original lesion, which may be left to nature, undisturbed by galvanism, which has been recommended by some authors. Of positive benefit is faradization of the paralyzed muscles, which must, however, be carried out persistently for months. Next to the rubbing, it is the most important agent upon which we rely to prevent atrophy and maintain the nutrition of the parts. It is not often that we find hospital patients able to spare the time for the prolonged treatment needed in these cases. Fortunately, the wasting is not extreme, and even without the treatment the leg and face recover more or less completely.

A considerable number of the cases come under observation when there are marked rigidity and contractures. For this condition in the palsied arm of hemiplegia not much can be done, but in the cases of spastic diplegia and paraplegia manipulations and surgical measures will often enable a crippled patient to walk. Persistent massage with strong flexion and extension of the limbs, as recommended by Dr. Weir Mitchell, is of great service. Case IX. of the spastic paraplegia cases could not walk when brought to the Infirmary, and after about a year's persistent treatment, frictions with oil and forcible flexion and extension, she can now get about the house quite well. Sooner or later the majority of these cases come under the care of the orthopedic surgeons who were dealing with this condition—and some indeed, as Heine, knew upon what it really depended several decades before physicians had recognized that it was primarily an affection of the nervous system. The wood-cuts and plates given in the works of Heine, Little and Adams show how well they dealt with these cases, and we have many illustrations at the clinics of my colleagues, Drs. Morton, Hunt and Goodman, of the good results of division of tendons and of the application of proper apparatus.

There are one or two special symptoms calling for comment. The aphasia, as we have seen, usually disappears, but it may be helped by systematic education, and these cases do better and recover more promptly than aphasia in the adult.

Epilepsy is a distressing symptom for which many of the cases seek relief. It is well to recognize clearly the cortical nature of the attacks, and let the parents know that a cure can rarely be anticipated. It is encouraging, however, to note that the seizures may lessen greatly,

[1] Canada Medical and Surgical Journal, vol. viii.

and prolonged periods of quiescence are not uncommon. The attacks of hemi-epilepsy without loss of consciousness may persist for years before a general convulsion with loss of consciousness occurs. In some instances the attacks are repeated with extraordinary frequency, twenty or more daily. In the transient attacks of *petit mal* the bromides do good; but, as a rule, in the true Jacksonian fits, unless there is much irritability and excitement, I have not found them very beneficial.

An important question of practical moment has arisen in connection with the propriety of surgical interference in these cases. Jacksonian epilepsy has now its surgical aspects, and there have already been several successful cases of removal of tumors from the motor areas of the cortex. Infantile hemiplegia offers some of the most typical instances of cortical epilepsy, and it may be well to consider how far it is likely that surgical interference can here be successful. As we have seen, in the review of the morbid anatomy, the conditions to be dealt with are (1) apoplectic, embolic or thrombotic foci, which are as frequently in the territory of the central as of the cortical arteries; (2) sclerosis; and (3) porencephalus. I do not think that, in any of the cases which I have reviewed, the anatomical condition offered the slightest possibility of relief from surgical interference. I except the case of glioma of the paracentral lobule to which I referred. This girl had had Jacksonian epilepsy for many years and the tumor could have been readily removed. In the second autopsy of the Elwyn cases, in which there were blocks of sclerosis, the mass causing the hemiplegia might have been removed, but there were several other areas. There have been two cases of operation in the cortical epilepsy of infantile hemiplegia. Bradford, of Boston, operated on a case of Bullard's.[1] A boy, aged four years, forceps delivery, idiotic, and in a state of right spastic hemiplegia. There was a scar and depression on the right parietal bone, due probably to the forceps. The trephine was first applied over this part, but the brain-substance beneath was found normal. The left side was then trephined and a porencephalous condition of the Rolandic region found. The child died the next day. No autopsy was allowed. The other case was operated on in the Infirmary, by Dr. Morton. I have referred to it when speaking of the symptom of epilepsy (Case XCVII.). Dr. Mitchell, under whose care the child was, believed there was a possibility that the lesion might be a localized area in the motor zone, which could be removed, and in this opinion Dr. Sinkler and I concurred. Accordingly Dr. Morton exposed the Rolandic region and found an œdematous condition of the membranes, but no focal disease. Whether the portion removed is sclerotic has not yet been determined. The child recovered perfectly from the operation, the dressings were removed on the sixth day. The spasm of the arm has lessened and the attacks of epilepsy have reduced in frequency.

There are several circumstances which militate against the probable success of operations of this kind. The nature of the lesion is such that not much can be anticipated. When sclerosis exists the area is usually too large for removal; when porencephalus is present, we are not, as Dr. Morton Prince said in the discussion on Dr. Bullard's case, "likely to improve a pure paralysis, due to a hole in the brain, by making the hole bigger." But a more serious objection was raised in the same discussion by Dr. J. J. Putnam, viz., the existence in these long-standing cases of descending degeneration. The paralysis in such instances could not be benefited, and it is only in exceptional instances that we can expect the epilepsy to be relieved. Time alone will determine how far in the removal of centres for cortical epilepsy the improvement is temporary or permanent, and how much less irritating the scar of a surgical wound will be than the cicatrix of an accidental trauma.

More serious in many respects, and more distressing to friends and relations, are the mental defects so apt to be associated with these cerebral palsies. The subjects of bilateral hemiplegia are usually imbecile, often idiotic; the spastic paraplegic cases offer greater hope of mental improvement, and many of the patients are intelligent and learn to read and write. They rarely suffer from epilepsy, so potent a factor in inducing mental deterioration. A large percentage of the cases of hemiplegia grow up feeble-minded, a larger percentage than indicated in our table. Much depends, no doubt, upon the area and regions of cortex involved, but even in such localized lesions as that shown at Fig. 1, there may be serious mental deficiency, showing that the actual damage is more apparent. The injury to the brain is usually done at the very time when the faculties are developing and the education of the senses is preparing the way for the higher intellectual processes. It is not surprising that in so many cases the damage is irreparable and that idiocy or imbecility results. A few years ago these cases were neglected and thought incapable of education. The results which are attained by Dr. Kerlin and his staff, at the Pennsylvania Institution for Feeble-minded Children, and in other public and private establishments, demonstrate that the lesson which Dr. Seguin, Sr. labored a long life to teach has been well learned—the lesson that with patient training and kind care many of these poor victims may be rescued from a condition of hopeless imbecility and reach a fair measure of intelligence and self-reliance.

[1] Boston Medical and Surgical Journal, 1883, vol. i.

ORIGINAL ARTICLES.

A CASE OF LIGHTNING SHOCK WITH RECOVERY.[1]

REPORTED BY J. B. PAIGE, V.S.

With remarks.

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REPORT OF THE CASE. (BY J. B. PAIGE.)

The accident about to be described occurred in Prescott, Massachusetts, during a terrific thunderstorm. July 29, 1887, about five o'clock P. M.

Lightning struck the house, to all appearances the chimney of the upright part first. At the roof the current divided into three parts, one following the chimney down to the floor of the second story, then passed along a stove-pipe out of the chimney, and

[1] Read before the Medico-Chirurgical Society of Montreal, March 16, 1888.

partly to a nail in the floor by the legs of the stove, and thence by the timbers to the earth. A second subdivision of the current followed a rafter on the north side of the roof, after leaving which it could not be traced. This rafter was completely torn from its place. A third current passed down a rafter on the south side of the roof. At the lower end it divided again, one portion following the finish of the roof, passed along the other side of the L to the opposite corner, followed the track of a rolling door and reached the earth by the corner post of the house. The other part coursed along the studding of the house, near the window, and passed to the earth. Attached by a screw to the upper casing of the window was a large iron hook on which was suspended, by a brass chain, a bird-cage. One part of the current going by this chain to the bird-cage, left it at one corner, entered the body of the subject of the accident, and left the room by a nail in the floor.

That the electrical influence in this quarter was intense is proved by the fact that the links of the chain, in some places, were nearly melted apart, while the solder at the corner of the cage, where the fluid left, was completely melted. Again, the nail by which it passed through the floor was considerably roughened. It appeared as if it had been partially melted at a high temperature.

The position of the four persons about the place at the time the house was struck is represented by the letters A, B, C, D, the first three being out of doors, seated upon the floor of the piazza. D, through whom the electricity passed, was seated just inside the window.

The distance from A to B was about two feet, from B to C eighteen inches or two feet, and from C to D six or seven feet. As a result of the shock D was rendered completely insensible, C was thrown upon the floor and was unconscious for a second, in fact did not even hear the report, which was like the peal of heavy artillery. Although C and D were so much affected, neither A nor B felt the shock.

This all took place before one could realize what had happened.

A, B and C, who regained consciousness immediately, ran from the house about twenty or twenty-five feet upon the lawn. Thinking of their companion inside, they returned and found that she had been thrown from the chair in which she was sitting directly across another chair, a distance of two or three feet. She was taken out to the piazza immediately, and her condition was found to be as follows: Completely unconscious; motionless; muscles relaxed; left eye closed, right, open; face purple; pulse at wrist imperceptible; neither heart sounds nor respiratory murmur to be heard.

Later, an examination showed the course of the electric current to be as follows: It struck the head above the left eye, midway between the eyebrow and hair, which was apparently the part nearest the corner of the bird-cage; passed along in front of the ear, then to the central line of the thorax, descending by the stocking supporter, which was attached to the corsets; thence to the top of the stockings, leaving marks upon both limbs, but more especially upon the left, on the back of which, just above the knee-joint, was a burn about the size of one's hand. It had the appearance of an ordinary burn, and was only superficial. No trace of the current could be detected again until the foot was reached, from which it passed off by the joint of the great toe, tearing a place about two inches in diameter in the stocking and slipper, but not leaving the slightest mark upon the skin. With the exception of the burned spot on the posterior part of the left leg and one or two small burns on the body and the right leg, hyperæmic lines, alone, marked the course of the electricity in its passage over the body.

After removal of the patient to the piazza, the clothes about the neck and chest were loosened and artificial respiration commenced. In from three to five minutes the first sign of life appeared in the flexion of the right leg. The dark color disappeared from the face and the pulse could be felt at the wrist. It was then weak, rapid and irregular. The treatment was kept up for ten or fifteen minutes, until the body began to feel cold, when the woman was removed to the house and placed upon a bed. The moving caused a disturbance of the circulation, as was shown by the pulse, which became very faint and fluttering. In order to encourage the circulation, hot fomentations were applied to the chest, and as soon as they became cold were replaced by fresh ones.

Soon a new train of symptoms set in. There was difficult respiration. The mucus and saliva, which were very abundant, had gravitated back, and could not be swallowed because of complete paralysis of the pharynx, etc. There was, in fact, paralysis of almost all the muscles of the uppermost parts of the body, including the arms. The symptoms were those exhibited by an animal when being asphyxiated: violent muscular contraction, difficult and forced respiration, etc. To remove the saliva and mucus, which caused the obstruction, the head and trunk were lowered. Handkerchiefs were also used. These were placed over the finger and passed back as far as possible into the throat, and in this way large quantities of the saliva and mucus were gotten away.

From one-half to three-quarters of an hour after the accident, consciousness began to return and the muscles of the arm to regain strength. Sight was restored to the right eye, although it could not be moved. Though the subject could hear she could not speak. This was shown by the fact that when asked to press the hand if she felt better she responded. About this time paralysis began to disappear gradually from the tongue. Improvement continued; brief intervals of sleep were enjoyed through the night, and there was absence of any considerable pain.

The next morning, about twelve hours after the accident, there was sufficient œdema of the upper and lower lids of the left eye to close them completely; this lasted for several days, and when it disappeared there was noticed a slight effusion in the anterior chamber (?) which interfered considerably with vision. There were no signs of inflammation

of any of the parts of the eye. There was a complete return of the cerebral functions, the mind being as clear and as active as usual.

The patient could, as yet, swallow only a few drops of ice water at a time, and then with great difficulty. The trouble seemed to be in the pharynx, as it was easy enough to carry the water backward.

The paralysis passed away slowly, so that in about two weeks solid food could be swallowed. The strength of the patient was maintained during this period by thin gruels, brandy and a fluid preparation of beef (Bovinine).

To allay the great thirst of the first twelve hours, small pieces of ice were kept in the mouth.

Twelve or fourteen hours after the accident, intense pain set in about the head, neck, arms and chest. That about the chest continued during the day, but was somewhat relieved by mustard poultices. The pain in the head was constant and very severe, and lasted seven days. During the first five it was relieved somewhat by cold applications, which were replaced by hot ones on the sixth, and continued for two days. After this, the pain occurred only occasionally. The pain in the neck and arms was not so constant, but when present was severe. Shampooing relieved it more than anything.

The severe pain prevented sleep at night. This was combated by morphia and atropia, $\frac{1}{8}$ grain of the former and $\frac{1}{200}$ of the latter to the dose.

For five or six weeks the left eye was drawn inward and upward, double vision resulting.

At no time during the illness did the temperature rise higher than 101° F.

The functions of the urinary organs were not interfered with at all. Menstruation was in progress at the time of the accident, but continued as though nothing unusual had happened.

Constipation was marked for a time, there being no movement of the bowels for five days after the accident. This was brought about by the use of enemas and small doses of gray powder. After this, the bowels acted regularly.

The treatment of the case consisted in combating the symptoms as they appeared; but it is very doubtful if any good was accomplished by the use of drugs, with the exception of the morphia, atropine and gray powder, although bromide of potassium, quinine and several other remedies were used.

The patient remained in bed two weeks, then sat up for a short time daily, until at the end of four weeks she was able to take a ride of thirteen miles in the cars to her home.

Complete recovery has taken place with the exception of the left eye; the vision of which is somewhat impaired.

The management of the case immediately after the accident was conducted by Mr. Paige, then an undergraduate, who was on the spot at the time.

REMARKS ON THE OPHTHALMOLOGICAL ASPECTS OF THE CASE. (BY DR. FRANK BULLER.)

There was a steady improvement in the visual acuteness for some two months after the accident, but no perceptible improvement has taken place since then. The patient suffered severe pain about the eye and left side of the head for about a week after the injury. There is nothing abnormal in the external appearance of the eyes nor any evidence of injury to the adjacent parts.

The conjunctiva, cornea, anterior chamber and iris appear just as in the other sound eye. The pupil is of medium size, but does not respond to light quite so promptly as that of the other eye. The existing visual defect prevents an accurate estimate of accommodation, but the ciliary muscle is certainly not inactive. Vision of right eye $= \frac{6}{VI}$, slightly better with + 0.5 c. ax. 90°. Left eye, vision $= \frac{20}{L}$, not improved by any glass. All the extrinsic muscles appear to do their work efficiently.

Two hours after free instillation of solution of homatropine, gr. viij ad ℥j, there is R. H. = 1 D., vision $= \frac{6}{VI}$ L. H. = 1.5 D.; vision $= \frac{6}{XV}$. Under ordinary circumstances there is binocular vision, but a vertical prism gives a lateral convergence = 18°, abduction = 3°, adduction = 42°, and ? right hyperphoria = 2°.

It will thus be seen that there is an insufficiency of the external recti which may be her normal condition, or, in view of the fact that there was no visual disability of either eye prior to the accident, it is more probable that the left external rectus had not fully recovered from the effects of the injury.

By facial illumination there is seen to be a considerable opacity at the posterior surface of the lens very like that of an ordinary posterior polar cataract, with this difference: the opacity is obviously, for the most part, situated in the lens substance, and does not, like the so-called posterior cataract, present a concave anterior surface.

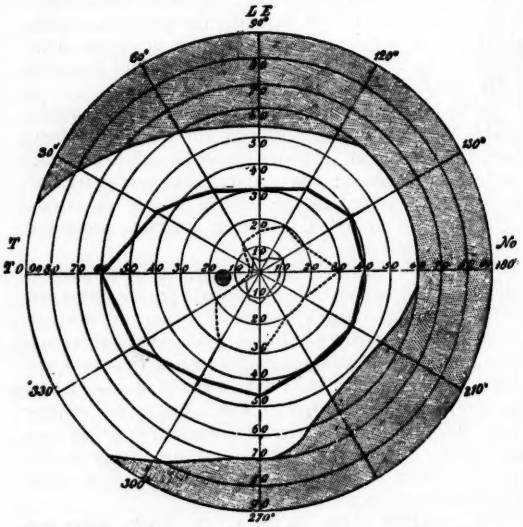
The opacity has a circular outline, but is not sharply defined, and beyond the principal opacity there are some nebulous cortical opacities extending further toward the posterior periphery. The vitreous humor contains a few floating particles so fine that they are seen with difficulty even with the aid of a + 6 D., ocular behind o. mirror. The optic nerve is very pale and its margins slightly blurred, but this may be partly due to the defective transparency of the lens. There is nothing else indicative of an optic neuritis, past or present.

In addition to the pallor of the nerve, there is a considerable diminution in the calibre of the retinal bloodvessels, with loss of the fine vessels on the papilla to about the same extent as may be observed in an ordinary case of moderately advanced simple atrophy. Several of the larger vessels, both veins and arteries, have whitish borders for some distance in the retina. Other than these there are no visible changes in the fundus oculi until we come to the extreme periphery, at and somewhat below the horizontal meridian. Here there is a broad patch of irregular choroidal pigmentation composed of ill-defined masses of dark pigment, but not so black as the pigmented deposits commonly seen in choroiditis. The anterior boundaries of the pigmented area extend beyond the ophthalmoscopic area, but about the centre of the patch there is an irregular break

about the size and shape of two of the papilla partly overlapping each other. This patch is itself partly covered with pigment, but is of a dull orange color. If due to atrophy of the choroid at this part, the atrophy is not sufficiently advanced to show the tendinous whiteness of the sclerotic. It would seem to be either a rupture of the choroid at this part or an imperfectly absorbed effusion of blood, or, what is more probable, both these conditions are present.

It will be seen from this description that the injury has resulted in damage to the external muscular apparatus, the crystalline lens, the choroid and, lastly, the optic nerve. No doubt the visual defect is chiefly due to the latter, for there is a very pronounced concentric limitation of the visual fluid, such as we might expect to find in partial atrophy of the optic nerve, but which could not have resulted from any of the other lesions mentioned.

The color sense, though impaired, is pretty uniformly restricted for all colors (see chart of field). It is not easy to explain how this has happened, since we have no knowledge of the ophthalmoscopic changes shortly after the injury.



The white area in the chart of the visual field represents the normal limits of the field of vision for white of one eye whilst the individual is steadily gazing at the central point.

The heavy black line in the chart represents the actual (much diminished) area of the patient's visual field for white. The interrupted and dotted lines are the areas for the colors red and green respectively. These are also much contracted—about in the same proportion as the field of vision for white, but less regularly so.

There might have been an effusion into the tissues of the orbit causing pressure on the optic nerve behind the eye; or an effusion of some kind into the sheath of the optic nerve, or an interstitial neuritis as a result of concussion of the nerve, and any one of these conditions might have resulted in the existing partial atrophy.

I have not been able to find in ophthalmic literature any case of injury to the eye from lightning, in which an ophthalmoscopic examination was made shortly after the injury, with the exception of Brudenell Carter's case (*St. George's Hospital Reports*, vol. v. p. 322), incorrectly credited to H. Power by T. Leber, as well as by de Wecker and Landolt. In this case such an examination was probably made, but there is no mention of ophthalmoscopic changes; moreover, the injury was not caused by direct contact of the electric discharge with the patient's body, and as the man recovered perfect vision a few days after the injury it is not at all likely that any visible intraocular lesions were present. Of the few cases that have been reported since the ophthalmoscope came into use, those presenting intraocular lesions were all actually struck by the lightning. In one (reported by T. Leber in Gräfe's *Arch. für Opth.*, Band xxviii.) the general disturbance, burning of the surface, shock and paralysis, were greater than in our case. In this instance, too, both eyes were seriously damaged. Nevertheless the ocular lesions in our case are remarkable both in their number and severity.

The injuries known to have been inflicted on the eyes of the few cases hitherto reported, may be summed up as follows: Paralysis of the muscular apparatus, including the muscles of accommodation, cataract, deep-seated changes in the ocular tunics, such as ruptures of the choroid, choroidal and retinal hemorrhages, detachment of the retina, paralysis of the optic nerve in the form of atrophy of the nerve. Four of these conditions were present or had existed in our case, and may fairly be attributed to the injury, since, as already stated, there was no known visual abnormality prior to the accident.

REMARKS ON THE GENERAL PHYSIOLOGICAL ASPECTS OF THE CASE. (BY DR. WESLEY MILLS.)

The history of the above case may be summarized as follows: The subject of the accident is a young woman, healthy, about twenty years of age, married, who was struck by lightning some six months since. The immediate effect was instant and prolonged loss of consciousness, complete cessation of respiration, and partial arrest of the circulation. The first sign of life appeared in from three to five minutes. The circulation remained in a very feeble condition for some time. When the respiratory system resumed its functions, breathing was greatly impeded by accumulations of saliva in the pharynx. Consciousness was restored in from one-half to three-quarters of an hour. There was paralysis of the muscles concerned in voice production and deglutition, and of the arms and probably other parts. After twelve hours, recovery of the higher cerebral functions was complete, with partial restoration of the ability to

swallow. Dysphagia persisted in some degree for more than two weeks.

There was severe pain in the head, chest and arms, most marked in the head, and lasting for several days.

An internal strabismus of the left eye lasted for five or six weeks, causing diplopia, then gradually passed away.

The catamenial flow, in progress at the date of the accident, continued as usual. The urinary functions were normal throughout, but constipation was pronounced for some days. The patient has completely recovered, with the exception of the vision of the left eye.

The treatment was, first, artificial respiration, with, later, the addition of warm fomentations to the chest; the subsequent symptoms were combated by morphia, atropia, gray powder and massage. The young woman's general health continues to be excellent.

It is not my intention, in these remarks, to enter into the subject of lightning shock in general, but to confine myself to a brief explanation of this particular case. Its scientific interest lies in the fact that it is an example of one of Nature's physiological experiments—or, shall we say, in consequence of its violent character and the nature of the results, pathological. At all events, it is a lesson in human physiology, as I conceive it; and human physiology proper is so meagre that every scrap should be gathered together and carefully preserved. In order to keep these remarks and the paper as a whole as brief as possible, I shall indicate my own views of the case without entering as fully as might be into the evidence on which they are based.

The unconsciousness was owing to the shock (abolition of function) of the cortical cells (and others) of the cerebrum, arising from the violent impulses reaching them chiefly along the nerves, and not by the direct entrance of the electric current into the brain—*i. e.*, the effect was physiological, not physical, chiefly. The cessation of respiration and (partially) of circulation is to be traced to a similar action on the nervous centres presiding over these functions. The heart was slowed, and its ventricular action rendered highly intermittent, owing to impulses through the vagi nerves. The condition of the circulation may be considered a reversion for the time to the reptilian type (see a paper on "Reversion," by the present writer, in the *Canada Medical and Surgical Journal* for April, 1888); but the vagus is a trophic nerve, and the heart, though being injured by the venous blood, is also being benefited by the impulses descending the vagi—hence, a preparation for recovery.

The artificial respiration and heat furnish oxygen and—what is essential to mammalian functional action of all kinds—a certain temperature. The mammal, in this case, is presently restored to its normal grade, and leaves the reptilian (cold-blooded) condition, in which it could exist for a brief period.

There are many indications to show that the cord did not suffer as much as the brain, which is explicable by the site of the original impact of the current (head). Hence the leg can shortly be drawn up—a revived reflex, probably. The menses are not interrupted. On the other hand, there is constipation not to be accounted for wholly by the inactivity in bed, but by the inhibitory influence of the brain over the cord, which latter Goltz has clearly proved to be alone essential for defecation. At first it is a shade surprising that the menses were not interrupted as the action of the alimentary tract evidently was (constipation); but when the length of the latter is remembered and its abundant nerve-supply—the extent of cord thus nervously connected, etc.—the apparent mystery clears up in part, at least.

The paralysis of the muscles of the larynx, pharynx, etc., is to be traced to the effect of the current on the nerves themselves or their centres in great part, rather than to its direct action on the muscular tissue, though the latter need not be wholly excluded. This view is borne out by the pain which followed the paralysis, and which is best referred to the molecular changes in the nerve-tissue causing increased resistance to the passage of impulses which emerge in consciousness as pain. Since there was complete and rapid recovery of all the mental powers, the injury was probably chiefly to the nerves or the nerve-endings. Was the difficulty in respiration in this case owing to the secretion of an excess of saliva, or to the normal quantity not being swallowed at all, or to both? Experiment has shown that in the lower mammals an increase of secretion may be induced in two ways: either by stimulation of the nerves of the salivary glands, or by section of the nerves, which is, of course, equivalent to paralysis. Usually, however, in the cat, etc., the secretion following section of the nerves ("paralytic secretion") does not set in for some hours. One powerful electrical stimulation of the chorda tympani nerve will cause, in the lower animals, a considerable flow of saliva, which lasts for some time after the current is withdrawn. It may be that there was an excessive secretion in our case, due to paralysis of the nerves presiding over the secretions of the glands; but, upon the whole, it seems safest to regard the effects as due to failure in deglutition, with a possible excess of secretion, the result of the stimulus of the nerves by the electric current.

The good results following the use of morphia and massage seem to be in harmony with the explanations advanced as to the cause of the symptoms.

Why were the injuries to the eye most lasting? The œdema may be explained, either by a local or central effect through the nerves. Taking into account the fact that the current impinged so near

the eye, it is likely that both factors enter into the result. As none of the nerve-endings, we have reason to believe, are so delicate, so readily injured as the retina, it is not difficult to understand why the intraocular effects should be so permanent or, in fact, should be progressive, or even multiplied in kind.

Would this patient have recovered without the assistance rendered just after the accident? Considering that respiration was suspended, that the circulation, even with artificial respiration, was so feeble that the temperature fell, that consciousness did not return for so long, it does not seem reasonable to believe in the possibility of spontaneous recovery. But the case does seem to teach, in the clearest way, the importance of using such means as those employed in this instance promptly and perseveringly.

THE POISONOUS EFFECTS OF PETROLEUM.

BY W. H. SHARP, M.D.,
OF VOLCANO, W. VA.

IN the number of THE MEDICAL NEWS of May 19th, the leading editorial is devoted to this subject, based on an article in *Virchow's Archiv* by Lewin.

For the past nineteen years I have lived and practised medicine in an oil town, surrounded by oil wells, and in daily contact with laborers connected with the oil industry, and I hope the following observations may prove of interest.

In considering the effects of petroleum it is necessary to know clearly which kind of oil is indicated, as there are different grades of natural oil which must have different effects as they are richer or poorer in the lighter products, as gasoline, benzene, naphtha and carbon oil. The heavier natural oils, of specific gravities ranging from 26° B. to 35° B., such as are produced in West Virginia at this point, in Pennsylvania at Franklin, and at a few other points, are very different in composition from the lighter petroleum oils which range from 35° B. to 50° B., such as are so largely produced in Pennsylvania and Ohio, and are used for refining for illuminating purposes. The former are almost devoid of the gasoline, naphtha and benzene found in the latter, and do not make a satisfactory carbon oil. Where this heavy oil is produced there is found less gas than accompanies the light oils.

Again, the odor of various oils differs greatly, the heavy oils being less odorous than the light oils; and light oils also differ greatly from each other, as, for example, the oils from western Pennsylvania and northwestern Ohio. There are also differences in color. Some of these light oils also are not as well suited for refining for illuminating as others, while well suited for use as fuel.

From a tank of freshly pumped heavy oil, such as is produced here, there is almost absolutely no gas; as the oil approaches in quality the light oils, the quantity of gas increases. These heavy oils up to 32° or 33° specific gravity B. are not inflammable; a lighted taper could be dropped into a tank full of such oils with no more result than if dropped into so much water. From a tank of oil from 40° to 50° B. there is constantly an escape of gas, most inflammable, and the greatest care is necessary as to lights, etc., about the tanks and wells.

The worker in these heavy natural oils runs no risk at any time from the inhalation of gas, even in the tank sheds where the oil is stored, and the engineers at the pumping-stations of the transportation companies are exposed to no dangers from inhalation of gas.

During my residence here there has not been a single accident of this kind; and I have known of but two or three instances in which men suffered from the effects of gas when cleaning out tanks in hot weather. In these cases they suffered from dizziness and headache, which effects were transitory. As much of the heavy oil is mixed with water when it comes from the wells, it is allowed to stand in tanks for some time to separate. The water is drawn off from these tanks from time to time, and has a peculiar, sweetish, sickening odor, which is very disagreeable.

In all the light oil districts serious accidents are quite frequent from the inhalation of gas. It is, I believe, the practice to have the receiving tanks at the wells closely housed with wooden sheds, at the roofs of which are ventilators for the escape of gas. This past spring, one of my neighbors, an oil man, who had gone to North Baltimore, Ohio, for work, was suffocated in one of these tank sheds while making a run of oil, viz., running the oil from the receiving tank to the transportation or pipe line company's tanks.[1] It is said that the men employed in this work by the transportation companies become somewhat accustomed to this gas and can then remain longer exposed to it before feeling its effects. Oil-well drillers have told me that the sense of suffocation comes on very suddenly. When the gas is very plenty around drilling wells and if there be any delay in getting pure air, suffocation ensues. In this section, even when drilling in light oil territory, there is little danger from this, as our derricks are seldom tightly housed, as is the practice in other regions.

During my residence here I have never met with or heard of a case of skin eruption or acne, such as Lewin describes. My opportunities for observation have been ample; for ten years I was the only medical man in this locality, and most of my practice

[1] During the past week I saw in a Cincinnati daily paper a notice of the suffocation of two workmen in a tank-shed at Findlay, Ohio.

was among those engaged in or depending upon the oil industry: oil-well drillers, engineers pumping the wells, gaugers and laborers engaged by the transportation companies, men engaged in preparing the heavy oils for market in refineries located here—but we had no refineries engaged in making illuminating oils; and I feel certain that if natural lubricating petroleum oils produce such a condition of the skin I would have seen or heard of cases. Nor have I seen them among those of our workers who handled the lighter oils.

Heavy lubricating oils applied locally are not irritating; they are as bland to the skin as the best petroleum jelly or ointment. They have had a well-deserved reputation as soothing applications to burns and wounds; the heavier the oil the better it is suited for this purpose. These oils do not irritate any inflamed surface, but relieve the pain as well as does the linimentum calcis or white lead dressing. The only disadvantages I have found in its use are that the cloths become stiff from drying, and the application is a dirty one, penetrating the bedding, etc., if applied freely. A light oil 40° to 50° gravity would probably prove irritating from the presence of benzene, etc.

Internally these heavy *natural* oils have been used in pulmonary troubles, viz., bronchitis and phthisis; persons taking them in doses of from 1 to 4 f℥ several times a day. I have never known or heard of any ill effects from their administration. Of their use in larger quantities I know of no instances. Lewin speaks of experiments made upon animals, which demonstrated the poisonous action of the heavy oils, but he does not designate what heavy oils. Most heavy oils made from the distillation of the *light* oils, or from the *tarry* residue known as "still bottoms," no more resemble natural lubricating oils than butterine from diseased and dead animals resembles the best gilt-edge butter from a crack Chester County, Pennsylvania, dairy.

He further speaks of the greater liability to acne of those who work in the heavy oils and residue at the refineries. Perhaps a closer investigation would show that this effect is not so much due to the oils as to the chemical agents used in refining oils for illuminating purposes. It is well known that the oil is treated at one stage with sulphuric acid, and later with caustic soda, to remove any of the acid left after the washing of the oils in the agitators. This I *suggest* as a point of inquiry for those who attend the workmen at large refineries.

Very different is the effect of "carbon oil" applied locally. In this section it is used as a counter-irritant in domestic medicine in cases in which prompt effect is desired. Cloths saturated with it and applied to the skin soon cause redness, inflammation and, if kept on long enough, the occurrence of a fine vesicular eruption; the vesicles are of the size of small pin-heads. I have never seen pustules from it; these vesicles dry up and the epidermis desquamates. As a counter-irritant it deserves the attention of the profession, as it is nearly always at hand; nearly as prompt as mustard, equally so as oil of turpentine, much more so than croton oil; more permanent in its effects than the first two, it stands midway between these and croton oil.

Internally I have known it to be given in doses of from a half to one fluidrachm in cases of spasmodic croup. I believe that it sometimes gives relief by vomiting; at other times by promoting secretion of mucus and relieving spasm; but of this use of it I only write from hearsay. A friend of mine, for years an inspector and tester of the various grades of oils produced here, tells me that one winter, being much exposed to bad weather and subject to attacks of acute bronchitis, he used natural oil of 29° B. gravity three times a day all winter in doses of one-half fluidounce, with decided benefit; that he daily handled oils, at times his clothes being saturated, his hands constantly bathed in it, that it never had any other effect except to keep the skin in a soft, healthy condition; that among the employés of his company he has never heard of or seen any cases of skin eruption such as I described to him. On one occasion, standing by a tank into which *light* oil was being pumped, he inhaled the *gas* for some time mixed with air. It produced a species of intoxication, so that he could hardly walk, which soon passed off when he left the immediate vicinity of the tank.

Both crude oils of *lighter* grades and refined (carbon) oil are poisonous to the inferior grade of insect life, also, if applied freely to vegetable life. When the soil is saturated with them, it is ruined for some time; but the gas is never concentrated enough in oil regions to affect vegetation.

I have made a careful search in the *American Journal of the Medical Sciences* since 1869, and in other journals in my collection, and find only two cases of poisoning by petroleum recorded, viz., in the April number of the *American Journal of the Medical Sciences* for 1873.

CASE I.—A pint of "merchantable petroleum" (refined oil?) was taken with suicidal intent. But slight indications of intoxication ensued; only slight pain in region of stomach and but little febrile excitement. From entire surface exhaled a strong odor of petroleum, but breath was entirely free from it. On the urine a thick layer of petroleum floated, not as a secretion from the kidneys, but as a kind of mechanical filtration. For six days the smell of petroleum was given out from patient's skin. The urine was slightly alkaline, contained 0.1 per cent. of albumin and was rich in pus and epithelial scales. The reporter, Dr. J. Steininger, remarks that on the outskirts of Vienna petroleum is drunk by the common people in the same way and for a similar purpose as ardent spirits by others.

CASE II.—(*Medical Record*, September, 26, 1885.) Dr. Duguet, of the Lariboisière, reports the case of a man, aged forty-eight years, who swallowed about one pint of ordinary petroleum of commerce with suicidal intent. He felt at once a strong sensation of oppression along the

œsophagus and at the stomach, with a sense of humming, and was extremely agitated. He exhaled a powerful odor of petroleum, and vomiting being excited by ipecac. with large quantities of milk, a great deal of petroleum floated on the ejections, as on operations from the bowels following enemata. The urine was saved. That voided before administration of the emetic contained a floating layer of petroleum one inch thick; next day the amount floating on urine was about five drachms; on second day one drachm; then gradually ceased. Some albumin was present, but disappeared with the petroleum. During the first four days the petroleum prevented urine from undergoing decomposition for ten days.

From these two cases petroleum would not seem to be very poisonous, and to be chiefly eliminated by the skin and kidneys, especially the latter, unchanged by transudation.

That it is the lighter oils in the crude petroleum which produce the intoxicating effects, and that the acne seen in workmen is due to something used in the process of refining are highly probable; certainly they do not arise from contact with the natural oils of the heavier gravities, viz., 26° B. to 35° B.

THE GENERAL AND LOCAL EFFECTS OF PARAFFIN OIL UPON THOSE WORKING IN IT.

BY JOHN K. MITCHELL, M.D.,
ATTENDING PHYSICIAN TO ST. MARY'S HOSPITAL, PHILADELPHIA.

THE diseases incident to various trades and occupations have not received a great share of the attention of physicians, with the exception of certain neuroses, which have been very thoroughly studied. My own notice was first called to the subject of this paper when serving as resident physician to the Episcopal Hospital of this city, some five years ago. In the dispensary at that time I had the opportunity of seeing several cases of eruptions caused by kerosene, or the oils refined from it. Unfortunately, I was ignorant of their interest and novelty, and in the hurry of a very crowded service kept no note of them beyond the mere diagnosis in the dispensary book. My recollection is that none of them was so bad as the cases which I have recently studied at the works of the Atlantic Oil Refinery. I noted them merely as "general furunculosis," and they were treated, as skin diseases are apt to be in general out-service, with arsenic, and by directions to the patient to "wash." They did fairly well, and slowly recovered. Afterward, when house physician, I saw a large number of cases, in the charge of Dr. Morris J. Lewis, of a trouble which we believed to be caused by the handling, by unaccustomed men, of refined kerosine oil.

The subjects were all sailors, engaged in the loading of oil in barrels on ships lying at Point Breeze. The men were seized, always suddenly, and always after some days of the labor, with cramp-like pains in the stomach and intestines, together with severe constricting pain about the lower part of the chest, with obstinate, slight diarrhœa, with nausea and, occasionally, with some vomiting. After attempting to trace the disease to the influence of the river water, and excluding that, and finding that they were lodged much as usual in their hard-working calling, and living in an accustomed way, with the exception that, owing to the harbor rules against lights on board vessels loading oil, they were obliged to eat, for the most part, cold food. But this is by no means unusual at sea, and we were finally forced to agree with the men, who themselves attributed their difficulties to the vapors from the oil. The cases yielded to simple treatment.

Within the last few weeks the subject of skin trouble from oil was again suggested to me by a talk with Mr. Livingston, Superintendent of the Atlantic Oil Refinery at Point Breeze. The first case which I saw from this cause has already been shown at the College of Physicians.

My notes of this man's history and condition are like those of all the others I have seen, differing only in degree. I will give them in full, commenting afterward on the causes and peculiarities.

J. J., aged thirty-nine years, German. A middle-sized, strongly made man, with a good family and personal history. He has worked three years in the paraffin department of the oil refinery, at first out of doors, handling the products, but not much in direct contact with them. During the second year he had a slight eruption of comedones and boils, which soon disappeared. In the autumn of 1887, he was put at work inside the press-rooms. In October, he had some boils on his arms; soon after, they broke out on his legs; for a time they varied in severity, but in January and February of the present year, they became so painful and troublesome that he stopped his work on March 6th.

On March 8th, I made a careful examination. The appearance of the man's face was not peculiar except that there were two or three parallel rows of largish comedones upon his forehead. On stripping him and examining his trunk, similar comedones were found distributed over his shoulders, chest, belly, arms and legs, together with numerous rounded, elevated, angry swellings on a red, inflamed base, varying in size from a small pimple one-eighth of an inch in diameter to a huge boil at the point of suppuration, and two or two and one-half inches across. Some of them were simply red swellings, others presented evidence of containing pus. The arm, from about two inches above the elbow anteriorly to the wrist, was almost covered with them, and both the anterior and posterior surfaces of the thighs, from above their middle to the knee, showed scarcely a square inch of healthy skin. Below the tubercle of the tibia the legs showed nothing wrong.

A closer study of the surface with a magnifying glass showed that the smaller swellings bore a hair about the middle of them, and this usually sprang out of or just along side of the central black spot of

the comedo. It was evident, both here and in the other cases, that the comedo was the original lesion. The distribution of these was extraordinary; not only were they seated on the face, in the interscapular space and upon the chest, in all which situations they may be commonly found in persons who suffer from this form of skin trouble, but their presence was universal. Rows of them ran across the belly, particularly just above the umbilicus and around the waist; they were even crowded together on the backs of the hands. The recent ones were like ordinary comedones, simple black spots. The next stage showed these spots a little larger and behind them tiny swellings under the skin; in the third stage the spots were distinctly depressed a little, or perhaps it would be more accurate to say that the edges of the skin surrounding them were well elevated and slightly red. They then continued to swell and grow more inflamed, until the inflammation had pushed up the whole swelling, and in place of the comedo there was a round red tumor, the color shading off into the normal about it. The swelling itself was hard, the tissue around thickened and dense, and the inflammation seemed to extend deeply. Apparently some of these remained in this state; others grew larger and larger, or several ran together until their size was, as I have said, in some instances, more than two inches in diameter. A close examination showed upon the surface of all of them one or more of the black spots about which the inflammation had begun. The whole of the front of the left thigh was occupied by five or six such tumors. The formation of pus in them appeared slow, for, on incising one of half an inch across, a single drop of pus was all that it contained, quite deep down. The microscope revealed no unusual character in this pus, except that much sebaceous matter was mixed with it. A comedo removed entire by careful picking out with a needle, was found, with a powerful glass, to present only the ordinary appearance of such cysts, except that the dark-colored matter which forms the top seemed to line completely the little oval sac on all sides, as though secretion of it had taken place from within. On cutting into it a microscopic study discovered nothing save sebaceous débris and this unorganized dark pigment. The result of numerous examinations of pus and the contents of these cysts was the same in every case, with one exception, which I shall mention later.

The patient stated that he had little pain, except that the swelling made his movements very stiff, and exertion stretched the skin so as to hurt him. The boils, he said, he opened himself when he thought they had "come to a head," and that, before they had become so numerous, this had relieved him greatly each time. His functions were in perfect order, and his appetite good. His skin had a very greasy feeling, although he had washed thoroughly just before coming to visit me. I may add here, that after the first baths which he took during his stay at the German Hospital, the surface of the water in the tub was noticed to be covered with floating oil.

I examined his blood, but found the corpuscles perfect in size and shape, and the hæmoglobin 59 per cent.

I am indebted to the kindness of Dr. George A. Bodamer for the following notes of the foregoing case, while under his charge in the German Hospital

"During treatment in hospital new furuncles made their appearance and old ones relapsed, very often to the extent of formation of abscesses, which were opened and considerable pus eliminated. From this condition a rise of temperature occurred, seldom, however, above 102°, and ranging between this and normal. The soda baths seemed to give him great relief and cleanse away the fatty matters. After such a bath, to rub himself with a coarse towel, would dislodge, to a surprising extent, the comedones. The furuncles which relapsed and formed abscesses were mostly on the upper parts of the legs and arms. Another symptom of which he complained was intense pain at night, sometimes to an extent requiring morphia."

I have since seen this patient, who has almost entirely recovered.

As I have said, this case presents the features of "paraffin eruption" in a typical manner. Before speaking of the variations which I found in the details of some other cases, I will describe briefly the process of paraffin making, in which all my patients were working. After several distillations for removing oil of different specific gravities from the crude petroleum, there remains a heavy tarry residuum, by a new distillation of which paraffin oils are distilled over, and pure carbon is left in the stills. The paraffin oil is treated in huge tanks, with sulphuric acid to destroy any organic matter which may be present, then with soda to neutralize the acid, and then with pressure, hot in one, cold in another chamber, the latter kept artificially cooled by brine which has been chilled by an ammoniacal process. The men in the room in which cold pressure is applied to the paraffin wax are those who suffer worst and most frequently from the eruption. There are several probable reasons for this. I was told by the superintendent that new men were generally set to work here first. The work consists in the carri ge of the paraffin, which is about the consistency of stiff vaseline, from the receptacles where it has been cooled, to presses into which it is shovelled, and there squeezed to remove the oil.

The presses are arranged like cider-mill presses, and the packing involves much handling of the substance. The men were all working with their sleeves above the elbow, their trousers tightly tied below the knee, and loose gaiters of cloth or bagging strapped about the calf. The warm room was cleaner and much better ventilated, and although the process is similar, there is less direct contact with the wax.

In these two rooms I saw a number of cases. I shall only go into the details of one or two. It

appears from the testimony of the workmen, as well as from that of the superintendent, that, while most men are afflicted in from three to six weeks after going to work, some men never suffer at all. I saw one laborer who had been six years in this department, and never had had any trouble; but except the one already described, the worst eruption which I studied was in an Austrian workman who had been six months in the paraffin rooms before he had any trouble. Two months after the eruption appeared, slight improvement began, and it was just at this time that I saw him. In him the boils were chiefly on the arms and shoulders. The legs were less affected. I examined the urine of this patient very carefully, but could find nothing abnormal. In studying his blood, I did discover a curious but isolated fact. There was a distinct difference in the sizes and shapes of the corpuscles. The red corpuscles were cup-shaped, balloon-shaped, ovoid or crenated, and the sizes varied a good deal.

In three examinations of this man's blood I noticed this condition of poikilocytosis growing less in each. In the last examination the blood seemed to have returned to a natural state. The blood was studied within a minute of its withdrawal, so as to be sure of its freshness. The patient's general health was excellent.

In one case, in which the skin lesions were few, I found what I took to be fat crystals in the pus removed from a boil, and these were present in all of several slides made from it. I studied the blood, pus and urine in several other cases without noting anything unusual.

Anatomically, it is interesting to observe the situation of the boils. I believe that every one of them began in a hair-follicle, or at least this was true of every one of which I was able to note the commencement. About this seat the inflammation centred. If the hair-follicles and the sweat glands be as intimately connected as is sometimes asserted, this could hardly be otherwise. Again, it is at least curious that in no case were any boils observed upon the head, though, of course, this situation is usually well protected by a hat from contact with the oil; still, if it penetrates through several thicknesses of clothing to the limbs, why should it not make its way past so slight a barrier as a light cloth or straw hat?

To these details is to be added the fact that the general health of the workmen in paraffin seemed to be very good; those who had never had the eruption and those who had convalesced from it had clean skins and every sign of good condition.

Men suffering from the boils appear not to be affected beyond the local irritation unless it grows very severe. The paraffin seems to have no other than a local action; new men are attacked, as I have said, usually within a few weeks, sometimes not for months. In ordinary cases the irritated regions are the flexor surfaces of the arms, the front of the belly above the waist and the thighs; rarely the lower leg. The Superintendent of the Atlantic Company told me that his long experience in the oil regions and in Philadelphia had made him sure that friction was a factor. With this I incline to agree. The rolled sleeve rubs into the hollow of the elbow and below it, and here are the most spots on the arms. The trousers are strapped about the waist, and in several men I found a row or two of pimples and comedones extending around the body at this height when the abdomen was otherwise clear. The trousers' legs are fastened below the knee, and this makes them rub the knee and draw tight over the thigh. The clothes, of course, are soaked with the oil, and it is rubbed persistently into the skin by the friction of the moving garments.

I am a little at a loss to account for the cold-room men suffering more than those in the warm room. The latter are rather less in actual contact with the oil, and perhaps the warmth of the room renders the oil more fluid, and promotes a sweat-secretion which helps to carry it off. New men require some suffering to teach them the necessity of washing both themselves and their working clothes, and it is in the cold-room, as above mentioned, that new men commonly begin.

The workers in benzene suffer, I am told, in a similar way, but I have not been able to see any cases; and in the oil regions, pump-men, who are liable to be splashed by the crude oil, have the eruption badly; but here the crude oil is handled entirely by pipe-lines, so that the laborers have no direct contact with it.

I have not seen or heard of any cases such as Joseph Bell describes, in which paraffin had caused an epithelioma of the scrotum (*Edinburgh Medical Journal*, xxii. part i. p. 135).

I believe the only case hitherto reported in this country is one described in a brief note by Professor Harrison Allen in the *American Journal of the Medical Sciences* (1882, N. S., xliii. p. 92), in which kerosene oil was the cause.

I have recommended to the Superintendent of the Refining Company, who requested me to suggest a method of prophylaxis, that he should try to get the men to use a weak soda solution for their washing after work.

NOTE.—No reference has been made in this article to a very interesting paper by Dr. L. Lewin, "Ueber allegemeine und Hautvergiftung durch Petroleum," in *Virchow's Archiv*, cxii. H. 1. Dr. Lewin studied several of his cases at the Atlantic Oil Refinery, and gives an excellent lithograph of the lesions in one. The present paper, however, was completed before the appearance of Dr. Lewin's, and I have left it as originally written.

A CASE OF ABSCESS OF THE LIVER, WITHOUT THE USUAL DIAGNOSTIC SYMPTOMS.

BY JOHN L. DAWSON, JR., M.D.,
OF CHARLESTON, S. C.

ON March 6, 1888, I was summoned to H. S., a mulatto, male, aged thirty-five. During the early morning of the day previous he had been feeling badly, but had no prominent symptoms, merely a general malaise. After a restless night, he was suddenly seized with a severe chill, lasting for twenty minutes.

He was seen for the first time about two hours after this rigor, and found with a full, bounding pulse, moist skin and a temperature of 102° F. He had a history of having had an attack of malarial fever nine years before, and having recently spent several nights on the confines of the city in pursuance of his avocation, that of a policeman. The presumption was that we had to deal with an acute attack of miasmatic poisoning. He was given a mercurial purgative and ten grains of sulphate of quinine at bed-time, to be followed by five grains of quinine in the morning.

The next morning his temperature was normal, and his skin was secreting actively. His bowels had been evacuated and all of his functions were acting well. Toward evening he had another chill, followed by a rise of temperature, and again his temperature fell toward morning. This state kept up for three or four days, when he missed his evening chill, but the rise of temperature remained; falling from 101½° or 102° in the evening to 99° or 99½° in the morning. His sweats became more profuse. Quinine had no effect whatsoever; it was increased until at the tenth day he had taken grs. x morning, noon and night. This failed to produce any sign of cinchonism. Antipyrin and acetanilid were both tried at the rise of the fever toward evening, but abandoned on account of the production of more intense sweating. Every function was acting normally. The urine, though high colored and somewhat scanty, gave no evidence of disease when subjected to chemical tests. The bowels, naturally inclined to costiveness, acted every second or third day, and were normal in every respect. Percussion and auscultation of the thoracic region gave no signs whatsoever of pulmonic or cardiac lesion. There was no abdominal pain, no tympanites, no iliac gurgling and no rose spots.

We were at a loss to account for this daily exacerbation of temperature unaccompanied by any symptoms of its cause, until the end of the second week, when the rigors suddenly returned. They were very intense and of long duration; the temperature rose to 104° in the evening, with a morning decline to 100° or 101°. The patient was becoming exhausted, rapidly losing flesh and spirits. The actions at the end of the second week gave the first symptoms. The bowels, after having been confined for two days, were opened by a simple laxative, and the feces were white or of a very light clay-color, of a soft consistency and offensive odor, having very much the appearance of mixed mortar. Evidently the liver had ceased to act That organ was again examined and its outline carefully made. There was no enlargement and no tenderness on pressure. The patient had not a single ache or pain anywhere, slept well and digested his nutriment easily. These rigors, light colored stools and exacerbations of temperature continued for six weeks, the patient gradually losing flesh and strength, until April 18th, when he sank into a comatose condition with muttering delirium and all the evidences of approaching dissolution.

The diagnosis of the case was an exceedingly difficult one, there being no collection of symptoms to guide us. The clay-colored stools, the constant pyrexia, the profuse sweats and the occasional severe rigors pointed to septicæmia. The antecedent history gave no evidence of importance, but we suspected abscess of the liver. Abscess or a collection of pent-up pus would account for the sepsis, and the absence of bile in the excretion showed a derangement of the liver. Upon these two slight signs we made the diagnosis of hepatic abscess. Three days before the patient's death the liver was carefully examined in hopes of finding some point of swelling or fluctuation, and an aspirator was taken to the bedside to attempt a confirmation of the diagnosis, but failing to find the slightest physical sign my consultants agreed that the attempt was not warrantable.

Autopsy.—On April 26th, six hours after death, the cadaver was opened and the abdominal contents examined. The liver presented an abscess of the right lobe containing about four ounces of thick, grumous, yellow pus. The abscess was situated about half an inch to the right of the broad ligament, on the upper surface of the right lobe against the diaphragm. The rest of the organ was normal. The gall-bladder contained some bile but was not distended. The stomach and intestines were normal, but shrunken and empty. Kidneys normal. Lungs, heart and brain not examined.

REMARKS.—The interesting features of this case were the total lack of pain in the hypochondriac region; the fact that an abscess of such a size could have existed without giving rise to any symptoms save those of sepsis; and an inability to evacuate the pus had the diagnosis been indisputable. There was no needle in an ordinary aspirating case long enough to have entered the abscess cavity by external puncture.

Although there was a total absence of bile in the feces there was bile found in the gall-bladder. The skin and conjunctivæ were not in the least tinged with biliary coloring matter, and at no time during the disease was there evidence of icterus. The skin was somewhat waxy in appearance, but this was not taken into consideration on account of the natural color of patient, who was a mulatto of an albino cast.

HEBRA'S BATH CURE IN PHAGEDENA.

BY ALLEN J. SMITH, M.D.,
ASSISTANT DEMONSTRATOR OF PATHOLOGY IN THE UNIVERSITY OF PENNSYLVANIA.

THE following case, illustrative of the beneficial effects of the prolonged bath, suggested by Hebra in certain dermal affections, occurred under my care, as interne in the venereal wards of the Philadelphia Hospital, in 1886, and the prompt relief in a case of such grave prognosis, has seemed to warrant its being recorded.

R. M., about twenty-five years of age, a concert-hall singer and performer, had applied in February of the year for treatment of a chancroid of the prepuce contracted several weeks previously. He was a well-built young fellow, but of rather poor general health, due to his loose and irregular mode of life. He denied syphilis, but had had gonorrhœa several times. The foreskin, which was large and œdematous, was removed by the house surgeon on account of the discomfort and trouble occasioned in urination and from the retained secretions. For the first few days, no untoward symptoms were manifested; but presently the wound took on the phagedenic type, and slowly advanced, in spite of every treatment, to the destruction of the penis. Several enlarged glands in both groins shortly suppurated, were opened, and, failing to heal, were also attacked by the process. In August, when he came under my care, he had been under more or less continuous treatment by the internal exhibition of the potassio-tartrate of iron, with external dressings of the same, had had local applications of fuming nitric acid and other similar agents, had had specific remedies—all to no purpose; he was also receiving special dietetic treatment. The local condition and his general health, however, were both steadily proceeding to the worst; and a consultation of the visiting staff had decided against amputation of the penis, as a *dernier ressort*, as without hope on account of the advanced stage of the disease. The larger portion of the glans had entirely disappeared; the process had extended back over the penis, which was of the average size, until within less than an inch from the abdominal wall; almost all the skin was removed, and the spongy bodies were markedly involved. The superficial structures of the lower iliac regions were invaded to a marked degree, and the whole case was regarded with grave doubt as to the final outcome.

With permission of the surgeon in charge, Dr. A. W. Ransley, the man was at once ordered to be placed in a sitz-bath every day for as long a time as he could remain, the water to be kept at the body temperature. After removal from the tub the sores were dressed with iodoform, and the patient kept in the recumbent position, and the diet carefully regulated. The first day, he remained in the tub somewhat more than two hours, and the second, about four hours. On the third day, he remained in the water about five hours, and by this time the phagedenic process, which had been of late rapidly advancing, was visibly checked; and, too, the pain attending the sores was so much lessened that the morphia and camphor, which he had been regularly receiving every day, were discontinued. After the third day, rapid and astonishing improvement took place in the local condition, as well as in the general health, of the patient; and after this time, he spent about eight hours daily in the bath, and in a short time was permitted to walk about when not in the tub. Within the month, he was brought before the class as practically cured, but several small and deep portions of the sores remained open some weeks longer, and eventually required to be touched with a caustic before they finally became cicatrized. The vast bulk of the cure, however, was accomplished within four weeks from the commencement of treatment.

It was feared that the hard cicatricial tissue which covered the penis would react disadvantageously in case of erection; but compensation from the healthy epiderm about the genitals took place gradually, and, when last under observation, several months ago, the penis, while disfigured, was not a source of inconvenience. Several small perforations into the urethra, near the end of the glans, have persisted, causing a sort of water-pot stream in urinating; not, however, incommoding the man to the extent to have him consent to a secondary operation.

No debilitating effects were experienced from the prolonged immersion during the treatment, and not the slightest untoward symptom required attention. That the influence of the bath is only local goes without saying, and the marked improvement in the man's general condition could not have happened except from its beneficial result upon the sores primarily. A trial of the bath upon a general syphilitic, with large, deep tubercular ulcers upon the thighs, was followed by no result whatever; although, later on, these yielded to specific treatment combined with local applications of nitrate of silver and the écraseur.

223 S. SEVENTEENTH ST., PHILADELPHIA.

MEDICAL PROGRESS.

The Treatment of Diabetes Mellitus. — EICHHORST (*Schweiz. Corr. Bl.*, No. 13) cautions against the sudden institution of an absolute meat diet, as this carries with it certain dangers. Saccharin is useful in the dietetic treatment of diabetes, but must not be given indiscriminately, lest an unpleasant, sweetish after-taste remain or nausea or disgust arise. The author considers saccharin-cocoa a useful beverage, notwithstanding that it contains a not inconsiderable quantity of starch.

Little is to be expected from medicinal treatment, though Eichhorst saw a case treated with arsenic and another with opium, in which the sugar disappeared from the urine. Of treatment at the springs, the author gives Carlsbad the preference. The majority of patients return from Carlsbad with urine free from sugar. The cure is, however, not permanent. Antipyrin is not available in diabetes mellitus; in a case of diabetes insipidus, on the contrary, in which three gallons and a

half of urine were daily passed, the amount was permanently reduced to the normal upon the exhibition of seventy-five grains of antipyrin daily.—*München. medizin. Wochenschr.*, July 10, 1888.

The Treatment of Tension as met with in Surgical Practice.—In a lecture delivered before the Royal College of Surgeons of England, MR. THOMAS BRYANT summarized his views as follows:

1. The pain associated with every form of inflammation of the bone or of the peritoneal covering is due to tension, and the severity of the pain is a fair measure of its intensity.

2. In acute inflammation of the bone or its periosteum, tension is the chief cause of necrosis; and in the subacute and chronic forms, it is a potent cause of their chronicity, as well as of the destructive changes which, as a rule, follow.

3. The relief of tension, wherever met with, when the result of inflammation, is an important principle of practice which should be always followed. In bone, the principle is most imperative, on account of the difficulties under which natural processes act in that direction, by reason of the absence of elasticity or yielding in bone, and by reason of anatomical arrangements of its vessels which favor blood stasis.

4. To relieve tension in the softer tissues of the body, the local application of leeches, local or general venesection, acupuncture, aspiration, punctures and incisions may be requisite; whereas, to carry out the same practice in endostitis or periostitis, subcutaneous or open incisions down to the bone, and the drilling, trephining or laying open of bone by a saw, may be required, the choice of method having to be determined by the requirements of the individual case.

5. In the early or hyperemic stage of inflammation of bone, before destructive changes have taken place, experience seems clearly to indicate that the relief of tension—as indicated by a dull, aching pain, etc.—by means of drilling or trephining into bone, may arrest the progress of the disease, and help toward a cure by resolution; whereas, in the exceptional cases in which this good result does not take place, suffering is saved and destructive changes are limited.

6. In articular ostitis, of every kind and variety and in every stage, this mode of treatment cannot be too strongly advocated, as tending toward the prevention of joint disease.

7. In acute or chronic abscess of bone, diaphyseal or epiphyseal, the abscess cavity must be opened as any other of the soft parts, drained and dressed in the most appropriate way—the principles of treatment being the same in hard or soft tissue, although they are modified by the anatomical conditions of the parts.—*Medical Press*, July 11, 1888.

Aphasia with Disturbance of the Musical Faculty.—KAST, of Freiburg (Verslg. d. Südw.-deutsch. Neurologen u. Psychiater), has reported a case in which, in consequence of a traumatic aphasia, inability to sing manifested itself, while the patient remained capable of discriminating the finest intervals and of detecting errors purposely made by the musician. When the patient attempted to sing an air, the rhythm was precise, but he could produce no melody. The speaker also had under treatment a violinist suffering with cerebral syphilitic aphasia, but with unclouded intelligence. In this case, too, the musical disturbance is of a purely motor nature. The patient is unable to make the necessary movements of execution, but is cognizant of his errors, and accurately detects those made by others. By industrious exercise he has made good progress in singing, but in violin playing, on the contrary, there has not been the slightest improvement.—*Wiener medizin. Presse*, July 1, 1888.

Resection of Intestine for Intussusception.—DR. VASILIEFF describes in the *Chirurg. Vestnik* the case of a convict, aged twenty-five, who was seized with abdominal pain and vomiting. Laparotomy was performed in the prison hospital at Warsaw. A swelling was soon detected in the right hypogastrium, when the hand of the operator was passed into the abdominal cavity. This swelling was drawn forward and found to be an advanced invagination of the ileum into the colon; there was a very long meso-cæcum. The invaginated small intestine could not be reduced; so an elastic ligature was tied around the gut in two places, and the ileum and mesentery were divided. Then the invaginated ileum was readily extricated and about seventeen inches were resected. The abdominal cavity was well washed out with a solution of sublimate, and the cut ends of the gut were fixed by sutures to the abdominal wound. Much gas and fecal material escaped when the ligatures were untied. At the third week, the patient had an attack of hypostatic pneumonia, but recovered. At the sixth week, Dr. Vasilieff did an operation for the cure of the artificial anus. About six inches more of the intestine were resected, and the cut ends united by Czerny's suture. On the third day a motion was passed, but on the fifth, feces were found in the dressings. Three attempts to close the fecal fistula by suture failed. Digital exploration showed that a spur or valve was beginning to form. To this spur a pressure-forceps was applied; it fell off on the third day. Ultimately the fistula was completely cured.—*British Medical Journal*, July 21, 1888.

Secondary Fever after Scarlatina.—GUMPRECHT, carefully excluding complications and extraneous conditions, in a study of 228 cases of scarlatina, at the General Hospital at Friedrichshain, found a secondary fever in 13 cases, or 5.7 per cent. of all. He thus sums up the results of his study: 1. In a small proportion of cases of scarlatina there follows a distinct secondary fever, without detectable complication. 2. This fever immediately succeeds the scarlatina, or sets in some days after the temperature has reached the normal, and lasts of itself a few days to almost two weeks. It usually disappears with improvement in the general condition, and in the vast majority of cases terminates in recovery. Death results from exhaustion or from the occurrence of grave secondary complications, to which the secondary fever seems to predispose. 3. The fever is probably a distinct form of secondary infection and is related to the streptococcus of scarlet fever. It is also probable that the streptococcus finds entrance through the inflamed tonsils. 4. The biological activity of the streptococcus seems to exhaust itself in the pyrogenic action as a visible expression. 5. For the practitioner the recognition of the secondary fever demonstrates that the continuance of fever does not necessarily make the prog-

nosis of scarlatina the worse, but that he must be prepared for severe complications occurring late.—*Deutsche medicin. Wochenschr.*, July 5, 1888.

For Eczema of the Anus and Genitals.—LUSTGARTEN recommends the following ointment in this painful affection:

℞.—Oleate of cocaine . . .	½ to 1 part.
Olive oil	2 parts.
Lanolin	10 parts.—M.

Apply this ointment twice a day to the affected part. —*Gazette de Gynécologie*, July 15, 1888.

The Diagnosis and Treatment of Ulcer of the Stomach.—PROF. GERHARDT, at the commencement of his address on this subject before the Berlin Medical Society, observed that catarrh of the stomach, which formerly took the place of a diagnosis, was now a rare disease. Cardialgia, that had formerly, as a functional disease, occupied a very lonely position, had now got nervous dyspepsia and incontinence of the pylorus as associates. In place of the anatomical conception of a disease, the physiologist had rather come to the front. It was known that ulcers of the stomach heal very quickly, and it had been repeatedly shown that portions of mucous membrane could be removed from the human stomach without any permanent ill effects. In gastric ulcer we had not alone to deal with a necrotic process, arising from auto-digestion, but with a chronic ulcer, and in this disposition to chronicity lay a distinguishing factor as opposed to the loss of substance. A third factor was mostly to be sought in the action and characters of the gastric juices. Only in a few cases, in old callous gastric ulcers, for example, could the reason for the permanency be found in the structure of the tissues.

In the majority of cases it was some change in contents of the stomach that acted on its walls and gave origin to the continuance of the ulcer. Injuries from medicines, such as tartarized antimony and salicylic acid, were to be taken into account, forms of fungi, as also a certain hyperacidity of the contents of the stomach. A great danger to the patient lay in the bleeding to which the ulcers gave rise. In his Würzburg statistics, bleeding took place in 47 per cent. of the cases. Lebert in 104 cases had only remarked its absence in 22. The hemorrhage did not always take place from the vessels of the stomach itself, but from those of neighboring organs, for old ulcers often had their floor in other organs, most frequently in the pancreas, next in the left lobe of the liver, more rarely in the spleen. Vicarious menstruation could take place even through a healthy gastric mucous membrane, but such an occurrence was extremely rare. The absence of any palpable tumor had been adduced as an important negative symptom of gastric ulcer; he did not place much reliance on that. According to his views, four kinds of tumors could be present with gastric ulcer: old ulcers with callous margins, which could often be felt through the abdominal walls, or through the left lobe of the liver; another kind belonged to the pylorus, and was a tumor of indirect origin, from extraordinary thickening of the pyloric musculature; circumscribed exudation around perforations gave rise to a third and very rare form; a fourth kind was caused by the crowding of neighboring organs into a large gastric ulcer. In view of all this, the examination of the contents of the stomach was very important.

As regarded the much discussed hydrochloric acid question, he had lately, in twenty-four cases of circular ulcer, found the reaction normal in seventeen cases, but not in seven. Three of these had had hematemesis, two were strikingly anemic individuals, in whom the absence of acid reaction was explainable. The hydrochloric acid was occasionally considerably diminished after serious loss of blood. The observations of others agreed with this, and it must be taken as an undoubted fact, that, in some cases of gastric ulcer, the increase of the hydrochloric acid, which had been generally set up as an absolutely certain sign of the existence of a gastric ulcer, might be wanting.

The normal amount of hydrochloric acid in the digesting stomach varied greatly—between 0.05 and 0.4 per cent. The hydrochloric acid reaction was generally absent in the carcinomata, but exceptions were met with. In sixteen cases of carcinoma observed by him the acid reaction was present in two. The duration of the ulcer was sometimes as long as twenty-five to thirty years, with intervals of good health intervening, so that the patient was looked upon as cured. If a disease of the stomach had lasted three years without the formation of a tumor, we were justified in assuming the probability of a gastric ulcer. The seat was generally to be determined by the situation of the pain, which was rarely absent in fresh ulcers. The presence of pain was the more valuable for diagnosis when it was not near the xyphoid cartilage, but at a distance away, when it coincided with tenderness on pressure, came on at a fixed time after food and was worse in certain portions of the body. With contraction of the stomach it was generally at the cardiac end, with dilatation at the pyloric. With tenderness on pressure and the presence of a tumor, one would conclude the case to be one of ulcer of the anterior wall of the stomach, with a frequent bleeding one in the posterior wall, because tumors in front were more inclined to perforation, those behind more to hemorrhage. When a patient abstained from food, from pain in the stomach, and became thin and reduced in consequence, the disease was more probably ulcer, hardly carcinoma, rarely nervous dyspepsia. In the case of recent ulcer great loss of flesh was rare, but emaciation was often observed in old cases; weighing of patients was of great importance from a diagnostic point of view.

As regards treatment, diet took the first place, and, besides this, regard to the etiological condition and the character of the contents of the stomach were of importance. It had been proposed to feed the patient per rectum, but in many cases this was not practicable, as frequently there was a persistent hypersecretion of gastric acid. In recent cases, milk diet often sufficed, but in old ulcers, in which structural changes had taken place, milk was frequently not borne at all. Peptones he could not praise. Even if they could be taken, they caused a secretion of gastric juices, as Schiff had shown. In cases of profuse hematemesis and perforation, on the other hand, they were very serviceable per rectum. Peptones were, therefore, very suitable for cases in which alimentation by the stomach could not be carried out. In many cases a continuous secretion of gastic juice was present; this was diverted from the ulcer by meat or egg diet. Most physicians, therefore, recommend a diet mainly animal,

meat, milk or eggs. In cases of stenosis of the pylorus in which a tendency to lactic and butyric acid fermentations was present, one was compelled to give a diet consisting principally of flesh meat and to avoid the hydrocarbons as much as possible.

As regarded drugs, he did not think the use of morphia justified except in extreme cases, as under its use the patient was more easily inclined to indulge in errors of diet. In cases of doubtful diagnosis, hydrochloric acid was much employed; in cases of anemia, it was advisable in exceptional cases. He had obtained good results with perchloride of iron. Alkalies had not obtained much repute in the treatment of circular ulcer. Bicarbonate of soda and bismuth were principally employed on account of the property possessed by the latter of covering the mucous membrane of the stomach. It was much more useful to bring the walls continuously into contact with weak alkaline fluids, with the mineral waters of Carlsbad, Ems, Tarasp, etc. The first named, according to Jawoski's experiments, had the property, by its steady use, of checking the acid secretion, or of converting it into its opposite. Washing out the stomach with solution of common salt and the treatment by nitrate of silver introduced by G. Johnson were noted, and the frequent good effects of the latter. Condurango had a favorable influence. The most important advance of recent times was washing out the stomach. In old cases it was strongly to be recommended, but in those of recent origin there was danger of hemorrhage being induced. Moreover, some patients submitted to it with difficulty. It acted as a reliever of pain and an excitor of appetite; constipation and dilatation of the stomach ceased, and healing often took place.

The question of definite healing was a very difficult one. He had once had the experience of a patient coming one day to thank him for curing him of an ulcer of the stomach, and of being invited the next day by the patient's regular attendant to the post-mortem examination. On his return journey home he had committed gross errors of diet, and on the day following his ulcer gave way. It was to be noted that patients were frequently weeks and months without pain, with the ulcer still present, the pain at once returning on indigestible food being taken. It was, therefore, advisable to extend the treatment until the weight had increased, spontaneous pains had ceased and tenderness on pressure was no longer present. It was not possible with our present methods to prove a definite cure with absolute certainty. —*Medical Press*, July 18, 1888.

For Chapped Nipples.—

℞.—Salol . . . . . 1 part.
Ether . . . . . 1 "

Dissolve and add elastic collodion thirty parts.—*Gazette de Gynécologie*, July 15, 1888.

Treatment of Gout.—PROF. JACCOUD recommends a copious diluent draught and an exclusive milk diet in the treatment of gout; in cases in which there is considerable fever he gives a small quantity of hydrate of bromal. Preparations of colchicine and of salicylate of soda, though excellent as anæsthetics, are to be avoided. In patients affected with interstitial nephritis these substances produce most serious toxic symptoms.—*British Medical Journal*, July 21, 1888.

The Treatment of Chronic Diarrhœa with Silicate of Magnesium.—At the last session of the Paris Société Médicale des Hôpitaux, DEBOVE recommended the silicate of magnesium in the treatment of chronic diarrhœa. He gives five drachms to two ounces daily, in milk. In phthisical patients, who had suffered with diarrhœa for three to five months, the results were marvellous. Obstinate constipation usually follows the administration of the powder. As the diarrhœa of phthisis is due to organic changes (intestinal ulceration), the diarrhœa soon recurs, in consequence of which the continued administration of the preparation in smaller doses becomes necessary. It is an important fact that the use of powdered talc permits of the administration of substances which would otherwise not be borne by tubercular patients. Thus they readily take milk, which ordinarily causes diarrhœa; and Debove has by this means been enabled to give some patients as much as an ounce and a half of oil daily, much to their benefit. Already on the second day after the administration of the powder the stools are no longer white. The lightness of the powder favors its rapid elimination by the intestinal canal.—*Wiener medizin. Presse*, July 1, 1888.

Tannin in Dilatation of the Stomach.—DR. H. BOULLAND, thinking that tannin—which acts on the retractibility of the mucous membrane, and is at the same time absorbent and antiseptic—might be useful in dilatation of the stomach, has employed it in many cases with success. In cases in which constipation was present, Dr. Boulland administered doses of 10 centigrammes (1½ grains) instead of 20 centigrammes (3 grains). By this means the regularity of the bowels was not interfered with, and the dilatation decreased in proportions analogous to those obtained by washing out the stomach. In twenty days, the stomach was reduced nearly to its normal condition. At the same time, the patients took frequent but light meals, chiefly of pasty substances, and no starchy matter. When the dilatation is due to a tumor, tannin does not give better results than other methods. It diminishes mucous secretion, however, and renders the digestion less painful. Dr. Boulland has found the hemostatic properties of tannin equal to those of ergotin and perchloride of iron. In particular he has used it with success in many cases of epistaxis, when all other means had failed.—*British Medical Journal*, July 21, 1888.

Oil of Turpentine as a Hemostatic in Epistaxis.—In cases of obstinate epistaxis in which other means had failed, DR. M. EURYE, of Budapest (*Orrosi Heti Szcuile*, 1887, 12), upon a recommendation in Billroth's *Surgery*, used tampons saturated with oil of turpentine, with surprisingly prompt success. In one case in which the bleeding had continued for eight days and resisted all internal and external measures, threatening acute anemia, the application of three tampons moistened with oil of turpentine at once permanently checked the hemorrhage. To prevent intense irritation of the nasal mucous membrane it might be well to dilute the oil.—*Medicin. Chirurg. Rundschau*, July 1, 1888, from *Wiener med. Bl.*, 1888, 13.

The Bacteriology of Yellow Fever.—DR. STERNBERG, who recently made to the President a report upon the yellow fever at Cuba, before returning home delivered a lecture

before the members of the Royal Academy of Sciences of Havana. There are considerable discrepancies between the results arrived at by Dr. Sternberg and those obtained by the Commissioner of the French Government, Dr. Gibier, which appeared in THE NEWS of last week. The whole subject appears to be fraught with considerable difficulty, and evidently requires a good deal more investigation for its proper elucidation.

In all ten necropsies made by Dr. Sternberg, he reserved for examination parts of the stomach and intestines, of the interior of the liver and kidneys, and also specimens of urine from the bladder and of blood from the heart. With these materials he reared cultures in meat-peptone jelly or agar-agar, and in some cases in solidified serum or peptonized broth.

In addition to the more common forms four other bacilli were found: *a*, from one and a half to three times as long as its breadth, with rounded ends, and occurring singly or in pairs. In its morphological aspects it appears to bear considerable resemblance to some common bacilli of putrefaction, but it differs from these in the appearance of its colonies in jelly. The deep colonies are lobulated and have a pale-brown color, and those which grow near the surface present a lobulated margin, which gives them the aspect of a rosette or of a flower with its petals open, like a daisy; β, shorter than *a*, possessing the property of end-staining in a more constant and marked manner; γ, a bacillus which liquefied jelly and developed a green pigment, probably the bacillus of green pus; and a bacillus which forms flat colonies of a glassy appearance with irregular borders and wrinkled in the interior, is also mentioned as requiring further study.

In eight out of ten cases the cultures from blood taken from the heart remained sterile; seven of the cultures from the urine, four of the cultures from the kidney, seven of the cultures from the liver were also sterile.

The bacillus *a* was found in one case in cultures from the blood, in one in those from the urine, in four in those from the kidney, in two in those from the liver, and in eight in those from the stomach and intestines. This bacillus Dr. Sternberg has not succeeded in obtaining from the digestive tract of other bodies, but he is not able to assert at present that it only occurs in yellow fever, much further investigation being needed to determine the question of its etiological relation to that disease.

Dr. Sternberg's experiments on animals having up to the present time yielded only contradictory results, he will have to repeat them before drawing any conclusions.

In the cultures from the kidney and the urine in the first case the *a* bacillus was associated with another bacillus resembling it. After a good deal of trouble he succeeded in separating this out and studying it in pure cultures. Dr. Sternberg does not now think that *a* is like the bacillus of Babes, as he was at first disposed to believe; it is more probable that β may be so. This forms pale-brown colonies in jelly, which have no lobulated margins like those which characterize the *a* colonies. The β colonies, too, grow more slowly, and in mixed cultures in jelly in Esmarch's tubes, the β colonies do not begin to appear until those of *a* have acquired a considerable size. The characters of β will have to be gone into more thoroughly at some future time.

In the cultures of the stomach and intestine a bacillus which liquefied jelly was obtained in three cases. This appeared to be identical with Dr. Gibier's bacillus. Dr. Sternberg thinks he might probably have met with this bacillus more frequently if he had used jelly instead of agar-agar in his earlier cases. This bacillus, which he designates as γ, is large and oval, with rounded extremities, and, like many other microörganisms, shows in highly colored preparations the property of end-staining. This, indeed, is common enough in old cultures of bacilli. There does not appear to be any reason for looking upon this as a spirillum, as Dr. Gibier is disposed to do. In Dr. Sternberg's cultures it has not presented the character which, the French Commissioner believes, points it out as the probable cause of the disease, no deposit of black pigment having been observed in any of the tubes—neither in cultures sown directly from those supplied by Dr. Gibier himself nor in those obtained by Dr. Sternberg from the intestinal contents.

In three cases portions of liver and kidney were preserved in the laboratory, wrapped in muslin or blotting-paper soaked in a one per cent. solution of bichloride of mercury. The examination of the interior of these fragments at the end of forty-eight hours demonstrated the existence of numerous and various microörganisms. In one case there was found in a specimen from the kidney a large micrococcus in tetrads, associated with a streptococcus and staphylococcus which liquefied jelly. With this exception, Dr. Sternberg has met with no microörganisms in any of the cultures from the interior of the body. On the other hand, in cultures from the surface he always found micrococci of various kind.—*Lancet*, July 21, 1888.

The Development of Gastric Cancer in the Cicatrix of the Round Ulcer.—FLATOW (*Inaug. Dissert.*, Munich, 1887) describes a case of gastric disorder in a female, aged twenty-six, from the symptoms of which the diagnosis of gastric ulcer was made. At her request, the patient left hospital uncured, to return after a few months. She manifested all the signs of gastric cancer and in twelve days died in collapse. The autopsy confirmed the diagnosis. At the pyloric extremity of the stomach, on the lesser curvature, there was a cancerous tumor, growing evidently from a distinct cicatrix, one and a half inches long and three-quarters of an inch wide. The statement of Hauser that cicatrized ulcers of the stomach dispose to the development of gastric cancer is strengthened by this observation. It also supports Virchow's view of the etiology of tumors—that they preferably arise at points exposed to frequent irritation.—*Centralbl. für klin. Med.*, July 7, 1888.

Cocaine in the Surgical Treatment of Hydrocele.—To diminish the pain caused by the injection of iodine M. ALEZAIS proposes the employment of cocaine as a local anæsthetic. The tunica vaginalis testis is punctured and its serous contents evacuated. An injection of a solution of cocaine, two and a half grains to the ounce of water, is then made into the cavity and permitted to remain a few minutes. This is followed by the injection of the ordinary solution of iodine, which causes no more pain than that of the contact of the fluid with the walls of the cavity. By the employment of this modification of the classical treatment of hydrocele, it becomes possible to substitute the pure tincture for the weak solution of iodine, at the same time increasing the dose of cocaine. —*Rev. Gén. de Clin. et de Thérap.*, July 5, 1888.

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THE CÆSAREAN METHOD OF SÄNGER, AND THE CLAIMS TO PRIORITY.

No sooner is a new surgical method placed upon a sure basis by success than there is an effort made on the part of some one, to be perhaps followed by many others, to prove either that the operation was thought of long before, was tried at an earlier period by one or several other men, or that there is too great credit accorded for a new application of an old principle long taught. The Porro operation and the laparo-elytrotomy of Dr. T. G. Thomas had to pass through the fires of this form of criticism, and now we have to regret that repeated attempts are being made to show that before Dr. Sänger even published his new principles of uterine closure, other men, particularly in the United States, had practised the same methods of suturing with success.

It is true that the Sänger method of to-day is not precisely what it was in May, 1882, because resection of the muscularis and separation of the peritoneum are rarely required. Why? Because the object of these two steps—*i. e.*, the turning in of the peritoneum, so as to secure the serous surfaces in apposition, can be generally attained without them. The important steps of antisepsis—deep and superficial uterine suturing, multiplicity of stitches used in both rows and the application of the sero-serous method of closing the peritoneum, as in intestinal wounds, are all retained. The same ends are accomplished, although some of the means originally deemed essential have been found by experience not to be such, and the process has been wisely simplified. It is not generally known that Dr. Sänger was a successful Cæsarean operator before he wrote his first treatise upon the subject, and that it was the practical use of the uterine suture—old style—that led to the study which produced the improved method. Dr. Leopold's first operation was a Sänger, because he had become convinced that it possessed features which gave promise of success.

The claim that Dr. S. S. Lungren, of Toledo, Ohio, and Dr. Moses Baker, of Stockwell, Indiana, antedated in their operations the introduction of the method of Sänger by virtually adopting the same plan, rests entirely with other writers than themselves and requires a considerable departure from the language of their reports to establish. Other operators might much more justly be named as claimants than these two, both as to priority of time and close resemblance in technique.

Dr. Lungren says of his first operation, May 8, 1875: "Five silver wire sutures were now introduced to close the uterine wound. The sutures were entered about one-quarter of an inch from the edges of the incision and carried nearly through the substance of the uterus. Each one was twisted tightly twice only and the wire cut off close to the twist, which was then turned downward into the wound at right angles to the suture, care being taken to *approximate the edges of the peritoneum.*" There is certainly nothing peculiar in the manner of closure; a few deep sutures, no superficial ones, and the outer edges of the incision brought accurately edge to edge, as in an incised flesh-wound. Prof. D. Warren Brickell, of New Orleans, in 1867, closed the uterine wound in his Cæsarean case with six silver wire sutures in the same way and saved his patient.

In Dr. Moses Baker's operation, November 6, 1880, four sutures of carbolized silk were inserted in the same way, then tied and cut off near the knots. The woman and child were alive and well three years ago. If these were the same as the operation now called Sänger-Cæsarean, then Dr. Sänger cannot be said to have operated the thirteenth in order and two years and a half after Leopold, as Sänger performed a successful operation in August, 1880, or twenty-one months before Leopold's first case, using ten silk sutures, all deep, in the uterine wound, just as was done with silver wire in the Brickell and Lungren cases before his.

Quite a number of cases of uterine suturing might be quoted from American authors in which thread, silver and silk were used prior to the initial operation of Leopold, of Dresden, on May 25, 1882; but in no case was the discovery of Jobert de Lamballe (1824) and the method of intestinal closure of Lembert (1826) applied to the closing of the peritoneum in the uterine wound; in no case do we find proof that the serous surfaces of the peritoneal coat were placed in apposition (surface to surface, not edge to edge) in the uterine closure, or that more than ten sutures were inserted.

The nearest approximation to the Sänger method was made by Dr. R. O. Ingram, of Montezuma, Georgia, on September 18, 1874, when he inserted three rows of carbolized silk sutures in the uterine wound, viz., three deep, three half deep, and four peritoneal; but he did not welt in the peritoneum after the plan of Lembert in order to secure the most rapid union; his patient recovered.

We care little about the name of Sänger being given to the new Cæsarean operation, but we do care a great deal that he should not be robbed of the credit that is justly due him, first, in recommending two rows of multiple sutures to diminish individual tension and secure a tight closure; and second, the application of the intestinal suture and method of Lembert to the uterine peritoneum. This appears to be a simple matter, but why did not some one make the application years ago and thus save, as he has done, a large proportion of Cæsarean women? It is no discredit to him that he did not operate by his proposed method before Leopold. Dr. Sänger is a young man, is not a professor and has only a private hospital for the reception of patients. He has a large gynecological practice, but has not the opportunities for Cæsarean work that are possessed by those holding appointments to maternities, as Leopold, Zweifel, Breisky and others. It is, therefore, more to his credit that he stands in number of cases very near the head of the list of operators.

There have now been many more than a hundred of these operations, which are being performed at the rate of three per month, one-fifth of the whole belonging to our own country. We have gone through a trial of failures, the first five cases having been fatal; but have since done better, saving nine out of fifteen, several of the operations having been undertaken under conditions apt to render the result a fatal one for the woman, such as far-advanced cancer and Bright's disease. When the first chronological hundred can be arranged, it will probably be found that the mortality has been between twenty-five and thirty per cent. for all cases, favorable and unfavorable. We have a record of 36 cases for 1887, with 28 women saved, or nearly 78 per cent. Seven of the operations were American, with three deaths. Great Britain has at last entered into the trial, with two cases and two deaths: one woman had albuminuria, and the other, three fibroids in the line of incision, which became centres of purulent disintegration and prevented the union of the uterine wound. England appears to be peculiarly unsuccessful in all forms of Cæsarean work. Better subjects and a closer adherence to the German technique will, no doubt, produce more encouraging results. Her operators have very little faith in the Cæsarean section and strong prejudices against it, begotten by a mortality of about eighty per cent. in her past history. Of later years better work has been done, and we hope that the change will encourage her operators to make a more extensive trial of the new improvement.

Now that the operation is becoming less fatal in the United States, there is a growing disposition to depart from the technique of the Sänger method, by using fewer uterine sutures, by not turning in the peritoneum and by employing an uninterrupted suture instead of a number of Lembert stitches in its closure. We believe that every change has more or less risk in it and that the Lembert stitch, at short intervals, gives the best security against leakage. It may be true that union quickly takes place whether the peritoneal closure is made edge to edge or surface to surface; but after the successes of Leopold (eighteen saved out of twenty), we are not inclined to favor any departure from his example and go back to the earlier methods of uterine suturing. These departures are already creating trouble in making a true classification in certain German, French, English and American cases, when it is proposed to ascertain the mortality of the first hundred operations performed after what has been styled the Sänger method. Call the modern operation *New* or *Improved*, still it ought to have a certain established technique to be adhered to.

FOODS FOR INVALIDS AND INFANTS.

THE physician who is constantly prescribing foods for invalids and infants should be exceedingly cautious how he selects from the vast array of patent

foods upon the market, lest he unwittingly becomes a party to the ignorance, or deception and artifices of the vendors of some of these articles. Manufacturers are prone to vaunt the excellence of their special preparations and, often by the unwary aid of the chemist and the profession, are enabled to parade their advantages skilfully and effectively before the public. As Professor Leeds remarks: "Whatever characteristics in such foods are shown to be of most value, these characteristics the manufacturers claim that their special preparations possess; whatever constituents are of little value or indigestible, these constituents are asserted to be absent; whatever alimentary principles are easiest of digestion and most valuable in nutrition, these are asserted to be present." The physician owes it to himself and to his patients to sift these claims. He may not be able to conduct the analyses and experiments personally, in which case he should take advantage of the investigations of others well qualified to pursue them.

Some of the most useful inquiries conducted by State boards of health relate to this very subject. Special mention may be made of the recent investigations of Dr. Albert W. Leeds, the results of which are to be found in the last report of the Dairy Commissioner of New Jersey. These analyses and experiments relate to a number of well-known brands of infant foods and foods for invalids. Some of them are what they purport to be, but the greater portion are said to be misrepresentations, having constituents or proportions of constituents not given in the circulars accompanying them, or not having constituents or proportions of constituents represented as being present. In other words, their claims in important particulars are not supported by the results of chemical analysis. One article of which mention is frequently made contained over fifteen per cent. of alcohol, a fact which classes it among alcoholic beverages instead of "highly nutritious foods."

The practitioner who would intelligently and conscientiously prescribe proprietary foods would do well to consult the Report alluded to, rather than accept without reserve the laudatory and frequently deceptive circulars which accompany these articles; otherwise he may do injustice both to himself and to those who rely upon his skill and good judgment.

AN Army Medical Board will convene in New York City, October 1, 1888, for the examination of such persons as may be properly invited to present themselves before it as candidates for appointment in the medical corps of the army. Application for an invitation should be addressed to the Secretary of War, stating date and place of birth; place and State of permanent residence, and accompanied by certificates, based on personal acquaintance, from at least two persons of repute, as to citizenship, character and moral habits; testimonials as to professional standing, from the professors of the medical college from which the applicant graduated, are also desirable. The candidate must be between twenty-one and twenty-eight years of age, and a graduate from a regular medical college, in evidence of which, his diploma must be submitted to the Board.

Further information regarding the examinations and their nature may be obtained by addressing the Surgeon-General of the U. S. Army, Washington, D. C.

BY a Ministerial decree of July 16th, committees have been designated to organize the following International Congresses, to be held at Paris during the Universal Exposition of 1889. Congress of Dermatology and Syphilography; Congress of Hydrology and Climatology; Congress of Hygiene; Congress of Physiology; and Congress of Therapeutics.

THE Emperor of Germany has conferred the Order of the Star and Cross of the House of Hohenzollern upon Prof. von Bergmann; the Order of the Red Eagle of the Second Class with the Oak Leaf upon Prof. Gerhardt; and the Order of the Red Eagle of the Second Class upon Prof. Schrötter. These decorations are supposed to indicate the views of the Emperor in reference to the medical aspects of the sad events in Germany of the past few months.

PROF. HUGO ERNST HEINRICH RÜHLE, Director of the Medical Clinic of Frederick William University of Bonn, died on July 11th, aged sixty-four years. He was born at Lieguitz and finished his studies at Berlin. In 1857 he was made professor extraordinary and director of the medical clinic at Breslau. In 1860 he was called to the University of Griefswald, remaining until 1864. From this time on he was associated with the University at Bonn.

DR. JULIUS LUDWIG BUDGE, Professor of Anatomy at the University of Griefswald, died on July 14th, aged seventy-seven years. Budge belonged to that group of investigators who have taken part in the advances which physiology and practical medicine

have made in the last decade. Among his important works were *Movements of the Iris*, which was awarded prizes by the Paris Academy of Medicine and the Brussels Academy of Medicine; *Investigations upon the Influence of the Central Nervous System upon the Movements of the Bladder;* and *The Course of the Bile Passages in the Liver*. Budge was educated at Marburg, Berlin and Würzburg and settled at Bonn, where he was made professor. He was made Professor of Anatomy and Physiology at Griefswald in 1856.

REVIEWS.

TRANSACTIONS OF THE NEW YORK STATE MEDICAL ASSOCIATION, FOR THE YEAR 1887. Volume IV. Edited by ALFRED L. CARROLL, M.D. 8vo., pp. 554. New York: J. H. Vail & Co., 1888.

THIS volume of *Transactions* contains numerous papers upon practical subjects well worth the attention of the profession. In addition, we find these discussions at length—upon "The Management of Compound Dislocation of the Ankle-joint;" "Typhoid Fever;" and "Placenta Prævia." The President, Dr. Isaac E. Taylor, of New York, contributes the illustrated article of the volume, upon "Lupus of the Cervix Uteri and Female Genitalia." The book is especially interesting for its "Memoirs of Dr. Alonzo Clark," an excellent picture of whom forms its frontispiece.

We have been especially interested in the discussion on "Placenta Prævia." The mechanism of placental separation and the causation of hemorrhage are clearly set forth by Dr. Harrison, who opened the discussion. Dr. Taylor stated the results of studies and demonstrations made in 1852 and subsequently, which he published in 1862, which proved the anatomical facts stated recently by Hofmeier, regarding the structure of the cervix uteri and its behavior during gestation and labor.

Dr. Taylor believes that the cervix remains distinct until labor; that the placenta is in the body and not the cervix uteri; and that hemorrhage when the placenta is prævia is caused by uterine diastole, and not systole. Dr. Taylor claims priority in the discovery of these facts, and we are not inclined to dispute his claim.

The pith of the discussion is in the statement of the treatment to be employed, by Drs. Thomas and Lusk. This is, briefly, after the seventh month, the induction of labor; preferably by bi-polar version, rupture of the membranes, deliberate extraction, using the fœtus as a tampon; Barnes's dilators and the hot douche, if needed, to secure dilatation.

The volume contains much valuable matter and reflects great credit upon the Association from which it emanates.

CORRESPONDENCE.

TREATMENT OF STRICTURE.

To the Editor of THE MEDICAL NEWS,

SIR: My attention has recently been called to an article in your issue of July 14th, entitled "The Rational Treatment of Stricture of the Male Urethra," by Dr. J. H. Girdner, in which a series of statements are made which are at variance with careful statistics and the published experience of many well-known authorities on this subject.

That the tightness of a stricture depends upon the *amount* of plastic connective tissue thrown out is not in accordance with either pathological research or clinical experience, for, as a matter of fact, the *amount* of plastic material at first usually encroaches but little on the urethral calibre, but it is its contraction that is responsible for the narrowing of the urethral lumen. Thus, we do not find tight strictures appearing immediately after inflammatory action has taken place—*i. e.*, the time at which the plastic exudate occurs—but years after, owing to its gradual contraction, and the contracting band may be found to consist of a *mere thread* of connective tissue.

In spite of long and careful statistics to the contrary,[1] the author gives his dictum that the majority of strictures occur in the bulbous and membranous portions of the urethra, an old error, due either to faulty methods or means of diagnosis or to limited opportunity for investigation. The explanation that these portions, being the most dependent, the gonorrhœal poison naturally gravitates to and remains in them, is scarcely logical, unless we consider that gravity has no effect upon the pendulous portion, or that these patients suffer from constant priapism.

Against the operation of internal urethrotomy he urges that a stricture cannot be cut internally, without, at the same time, "cutting some of the sound tissue in its neighborhood." An objection which might apply to most surgical operations and most certainly does in the case of external section, which he advocates in the same article.

The author, moreover, has evidently not coped with urethral antisepsis; in a very large number of these cases under my observation, both in private and hospital practice, I have never seen a serious accident due to septic injection. It is needless to have the wound "constantly bathed in urine," or to have urine come in contact with the wound at all, for by the proper use of the catheter, the urine may be kept from the cut surfaces for any length of time necessary to healing; and if the author finds that with his "best care" he cannot prevent the introduction of septic instruments, his methods of asepsis are indeed faulty. I would call his attention to the valuable work of Dr. A. G. Gerster, *Aseptic and Antiseptic Surgery*, p. 312. The experience of that author "extends over twenty-one cases, in which strictures were cut successfully from within; *no febrile or inflammatory complications were ever observed;*[2] so much for sepsis.

In regard to deep strictures, the author very properly resorts to external section, claiming that this cures by the introduction of a wedge of *sound tissue* between the cut surfaces. It would be interesting to have him explain by what law of nature *sound tissue* is introduced between the surfaces in the repair of a wound in the urethra made from the outside and *contracting connective* tissue between the surfaces of a wound made in the opposite direction. Both clinical and pathological[3] investigation

[1] Otis: Stricture of the Male Urethra, its Radical Cure, p. 97.

[2] Italics my own.—W. K. O.

[3] See report of Dr. Stuart Eldridge, Otis on Stricture, Appendix.

have shown that healthy tissue is deposited in both cases.

In regard to the author's method of treating stricture of the penile portion, it is by no means novel and has, to my knowledge, been used by various surgeons with a certain amount of success in *recent* deposits of lymph along the urethral canal. Clinical experience, however, which overrides theory, however plausible on the surface, proves that, so far as organized strictures are concerned, the procedure is wholly inefficient to effect a cure.

Very sincerely yours,

WILLIAM K. OTIS.

5 WEST 50TH STREET, NEW YORK, July 20, 1888.

NEWS ITEMS.

The New Quarantine Act.—The following is the text of the quarantine act which passed the Senate May 3, 1888, passed the House July 23, 1888, and was approved by the President August 2, 1888. Its provisions go into immediate effect, and the quarantine buildings will be erected as soon as practicable. Steps will be immediately taken to secure sites for the quarantines not now on Government land:

An Act to perfect the quarantine service of the United States.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That whenever any person shall trespass upon the grounds belonging to any quarantine reservation, or whenever any person, master, pilot or owner of a vessel entering any port of the United States, shall so enter in violation of section one of an act entitled "An act to prevent the introduction of contagious or infectious diseases into the United States," approved April twenty-ninth, eighteen hundred and seventy-eight, or in violation of the quarantine regulations framed under said act, such person, trespassing, or such master, pilot or other person in command of a vessel shall, upon conviction thereof, pay a fine of not more than three hundred dollars, or be sentenced to imprisonment for a period of not more than thirty days, or shall be punished by both fine and imprisonment, at the discretion of the court. And it shall be the duty of the United States attorney in the district where the misdemeanor shall have been committed to take immediate cognizance of the offence, upon report made to him by any medical officer of the Marine-Hospital Service, or by any officer of the customs service, or by any State officer acting under authority of section five of said act.

SEC. 2. That as soon after the passage of this act as practicable, the Secretary of the Treasury shall cause to be established, in addition to the quarantine established by the act approved March fifth, eighteen hundred and eighty-eight, quarantine stations, as follows: One at the mouth of the Delaware Bay; one near Cape Charles, at the entrance of the Chesapeake Bay; one on the Georgia coast; one at or near Key West; one in San Diego Harbor; one in San Francisco Harbor; and one at or near Port Townsend, at the entrance to Puget Sound; and the said quarantine stations, when so established, shall be conducted by the Marine-Hospital Service under regulations framed in accordance with the act of April twenty-ninth, eighteen hundred and seventy-eight.

SEC. 3. That there are appropriated for the purposes of this act the following sums, out of any money in the Treasury not otherwise appropriated, for the construction, equipment and necessary expenses of maintaining the same for the fiscal year ending June thirtieth, eighteen hundred and eighty-nine.

For the Delaware Breakwater quarantine: Construction of disinfecting machinery, steam tug, warehouse, officers' quarters and expenses of maintenance for the fiscal year eighteen hundred and eighty-nine, seventy-five thousand dollars.

For the quarantine station near Cape Charles, Virginia: For the purchase of site, construction of wharf, repair of present hospital buildings and officers' quarters, disinfecting machinery, steam-tug, expenses of maintenance for the year eighteen hundred and eighty-nine, one hundred and twelve thousand dollars.

For the South Atlantic Station (Sapelo Sound): Construction of disinfecting machinery, warehouse, wharf, small boats and expenses of maintenance for the year eighteen hundred and eighty-nine, thirty-eight thousand five hundred dollars.

For the quarantine near Key West: Purchase of site, construction of disinfecting machinery, warehouse, small boats, steam-tug, hospital buildings and officers' quarters, expenses of maintenance for the year eighteen hundsed and eighty-nine, eighty-eight thousand dollars.

For the Gulf quarantine (formerly Ship Island), provided for by the act of March fifth, eighteen hundred and eighty-eight, in addition to the amount appropriated by the act approved March fifth, eighteen hundred and eighty-eight: For the expenses for the year ending June thirtieth, eighteen hundred and eighty-nine, fifteen thousand dollars.

Quarantine station, San Diego Harbor, California: For the purchase of site and the construction of disinfecting machinery, warehouse, small boats, hospital buildings, officers' quarters, and for expenses of maintenance for eighteen hundred and eighty-nine, fifty-five thousand five hundred dollars.

For the quarantine station at San Francisco, California: Hospital buildings and officers' quarters, disinfecting machinery, warehouse and wharf, steam-tug, small boats, expenses for the fiscal year eighteen hundred and eighty-nine, one hundred and three thousand dollars.

For the quarantine station at Port Townsend: For the purchase of site, construction of disinfecting machinery, warehouse, small boats, hospital buildings and officers' quarters, for expenses of maintenance for the fiscal year eighteen hundred and eighty-nine, fifty-five thousand five hundred dollars.

Disinfecting Clothes by Steam.—According to the New York *Tribune*, one of the busiest places in the city, in case of a serious epidemic of contagion, would be the ground floor of the Reception Hospital, in East Sixteenth Street, for there is the new disinfecting apparatus of the Health Department. Experiments to ascertain the most practical method for using heat in the destruction of disease germs have been conducted there since last winter. A tank of boiler iron, big enough for a dozen men to walk about in at one time, and having a strong iron door at each end, is the chief part of the apparatus. It is connected with a furnace and steam boiler by means of

pipes. The coils of pipes are close together inside the tank, and there is an arrangement of stop-cocks by which an operator can fill the tank with steam or dry heat at will. Dry air has been heated to a temperature of nearly 300° inside the tank.

When the apparatus was built the Health Board expected to be able to disinfect clothing and bedding by dry heat. Dr. Cyrus Edson knew that work of that kind had been done in Europe and he was anxious to make a trial. The Health Board has been making liquid disinfectants in the big room where the tank and boiler were set up. From a trough, in which water was passed over copperas, a strong solution of sulphate of iron was obtained, but it was used chiefly for disinfecting street gutters and the back yards of crowded tenement houses. A vile-smelling liquid, made by mixing vitriol with dead oil, was used in some tenement houses where the inmates thought that a disinfectant must smell strong to be effective. For the fumigation of rooms in which there have been cases of contagious disease the sanitary officials have used burning sulphur. It was the rule to burn up the bedding and clothing which had been in contact with smallpox or typhus-fever patients.

Dr. Edson and the Health Commissioners believed that the spread of diphtheria and of scarlet fever in the city might be checked if the department had means for the better disinfection of clothing and bedding. It was said that sulphur fumigation could not be depended on for the destruction of the germs of either disease in the clothing of patients and attendants. At the same time the Health Board could not compel the burning of bedding and clothing in the hundreds of cases of diphtheria and scarlet fever reported every month. Then there was the possibility that Asiatic cholera might come to the city and that the disinfection of clothing on a large scale might be imperative. It was believed that infected clothing could be placed in the new tank, subjected to dry heat for an hour or so, and then removed uninjured and free from the germs of disease. Experiments were begun to ascertain how many degrees of heat could be employed to kill the germs and yet not destroy the clothes. The result has been a change from dry heat to steam.

It was found that a few strong fabrics, which were placed in the tank dry and subjected to a dry heat of about 250°, came out purified and comparatively uninjured. An expensive carpet, belonging to one of Commissioner Bryant's friends, was ruined by exposure to 280° of heat in the tank for two hours. Another carpet, which had been left out in the blizzard and was partly frozen when it was placed in the tank, was subjected to a like test. Part of the carpet was burned up, while another portion was still frozen when it was removed from the tank. Subsequent experiments have shown that a roll of wet cloth may be subjected to intense dry heat several hours without being disinfected. It is believed that an envelope of steam protects the inner part of the roll from the heat.

By injecting live steam into the tank, Dr. Edson's assistants have been able to disinfect clothing and bedding at a temperature of about 160°, and the goods come out of the tank unhurt, except that the colors in some kinds of cloth are effaced or badly mixed. The disinfection by steam is rapid and satisfactory. Iron cages are being prepared for the collection and return of bedding and clothing. Each cage has a lock to it, and the owners of clothing can keep the key while the goods are being disinfected. The work is done by the Health Department, free of charge.

The Congress of American Physicians and Surgeons, Washington, September 18th, 19th and 20th.

The American Gynecological Society announces the following preliminary programme:

On the New Cæsarean Section, by William T. Lusk, M.D., of New York.

The Cause and Treatment of Urethrocele, by Thomas Addis Emmett, M.D., of New York.

Ureteritis, its Diagnosis and Symptomatology, by Howard A. Kelly, M.D., of Philadelphia.

High Amputation of the Uterus for Cancer, by Thaddeus A. Reamy, M.D., of Cincinnati.

The Technique of Vaginal Hysterectomy, by E. C. Dudley, M.D., of Chicago.

A Case of Rupture of the Uterus in Labor at Term, the Child born alive, the Mother subsequently having a full-term Child in Normal Labor, by C. M. Green, M.D., of Boston.

The President's Address, by Robert Battey, M.D., of Rome, Ga.

The Etiology, Pathology and Treatment of Anteflexion of the Uterus, by T. Gaillard Thomas, M.D., of New York.

Some Cases of Nerve Prostration in which the Remote Effects of Anæsthesia by Ether were bad, by William Goodell, M.D., of Philadelphia.

Cystokolpocele complicating Labor and Pregnancy—a supplemental contribution, by Samuel C. Busey, M.D., of Washington.

Adenoma of the Fundus Uteri, by James R. Chadwick, M.D., of Boston.

A Case of Extrauterine Pregnancy, by B. F. Baer, M.D., of Philadelphia.

On the Treatment of Extrauterine Pregnancy, by Joseph E. Janvrin, M.D., of New York.

On the Treatment of Pelvic Abscess, by R. Stansbury Sutton, M.D., of Pittsburg.

A Case of Subinvolution cured by the Removal of the Appendages, by Howard A. Kelly, M.D., of Philadelphia.

Some Points learned from an Experience of Thirty-four Ovarian Operation, with but one Death, by Joseph Tabor Johnson, M.D., of Washington.

The American Neurological Association will hold a discussion on "The Relation of Renal Diseases to Diseases of the Nervous System," "Cases of Trauma, wtih well-defined Lesions of the Central Nervous System" and on "Muscular Dystrophies."

The following papers will be read:

Post-hemiplegic Disturbances of Motion in Children, by Philip C. Knapp, M.D., of Boston.

Heat Centres in Man, by Isaac Ott, M.D., of Easton.

The "Ape-fissure," so-called, in Man, by Burt G. Wilder, M.D., of Ithaca.

Clinical Report of Cases of Epilepsy following Cerebral Hemiplegia, by E. D. Fisher, M.D., of New York.

The Relation of Urinary Changes to Functional Nervous Diseases, by C. L. Dana, M.D., of New York.

The Differential Diagnosis between General Paresis, certain forms of Intracranial Syphilis and the Cerebral

Type of Disseminated Sclerosis, by Landon Carter Gray, M.D., of New York.

Report of a Case of Primary Lateral Sclerosis, with late Cerebral Symptoms, due to Cyst of the Floor of the Lateral Ventricle, with Microscopic Report, by Wharton Sinkler, M.D., of Philadelphia.

A Case of an Unusual Form of Myxœdema, illustrated by Photographs and Sections of Excised Tissues, by F. X. Dercum, M.D., of Philadelphia.

A Case of Alcoholic Multiple Neuritis, with Sections, by James Hendrie Lloyd, M.D., of Philadelphia.

Observations and Experiments respecting the Pathology of Neuritis, by James J. Putnam, M.D.. of Boston. Dr. C. K. Mills and others will demonstrate specimens.

Myositis Subacuta Progressiva, by George W. Jacoby, M.D., of New York.

The Differential Diagnosis between Peripheral Neuritis and those Cerebral Affections with which it is most likely to be Confounded, by E. C. Spitzka, M.D., of New York.

Nervous Affections following Injury, by Philip C. Knapp, M.D., of Boston.

Hereditary Chorea, by Wharton Sinkler, M.D., of Philadelphia.

Aneurism of an Anomalous Artery causing Anteroposterior Division of the Optic Chiasm and Bitemporal Hemianopsia, by S. Weir Mitchell, M.D., of Philadelphia. To be read by F. X. Dercum, of Philadelphia.

A Case of Focal Epilepsy with Observations on Trephining, by James Hendrie Lloyd, M.D., of Philadelphia.

The preliminary report of the Committee on Encephalic Nomenclature will be read by Burt G. Wilder, M.D., Chairman, of Ithaca.

The Southern Surgical and Gynecological Association.—The following preliminary announcement has been issued of the papers to be read at the first annual meeting of this Association, to be held at Birmingham, Alabama, September 11th, 12th and 13th next:

The President's Annual Address, by W. D. Haggard, M.D., of Nashville, Tenn.

The Annual Oration, by W. F. Hyer, M.D., of Holly Springs, Miss.

Floating Kidney, with Vicarious Menstruation, by DeSaussure Ford, M.D., of Augusta, Ga.

Gastrostomy, by W. B. Rogers, M.D., of Memphis, Tenn.

The Medical Treatment of Fibroid Tumors of the Uterus, by Bedford Brown, M.D., of Alexandria, Va.

Indications for Operative Interference in Cerebral Troubles, by T. O. Summers, M.D., of Jacksonville, Fla.

A Case of Tubal Pregnancy, Presenting Interesting Medico-Legal Relations, by E. P. Sale, M.D., of Aberdeen, Miss.

Superinvolution of the Uterus following Trachelorrhaphy, by Virgil O. Hardon, M.D., of Atlanta, Ga.

I. Dermoid Cysts of the Coccygeal Region, and

II. Electrolysis in Gynecology and Surgery, by E. J. Beall, M.D., of Fort Worth, Texas.

Alexander's Operation, by W. L. Nichol, M.D., of Nashville, Tenn.

Hysterectomy in Cancer of the Uterus, by W. H. Wathen, M.D., of Louisville, Ky.

The Extravagancies and Impracticable Requirements of Modern Antiseptic Surgery, so far as the Country Practitioner is Concerned, by J. M. Taylor, M.D., of Corinth, Miss.

Treatment of Fractures with Plaster-of-Paris Splints, by W. F. Westmoreland, Jr., M.D., of Atlanta, Ga.

The Present Status of Electro-Therapeutics in Gynecology, by J. R. Buist, M.D., of Nashville, Tenn.

Antiseptics in Surgery and Gynecology, by F. T. Meriwether, M.D., of Asheville, N. C.

The Attitude of Removal of Uterine Appendages for the Cure of the Convulsive Neuroses, by W. Locke Chew, M.D., of Birmingham, Ala.

Interesting Cases of Surgery, by R. M. Cunningham, M.D., of Pratt Mines, Ala.

My Antiseptic Bags, or Practical Aseptic Surgery, by J. W. Long, M.D., of Randleman, N. C.

The New Departure in Uterine Therapeutics—the Dry Method, by T. A. Means, M.D., of Montgomery, Ala.

A Study of the Various Methods of Treatment of Laceration of the Perineum and Rectocele, with Report of Cases, by J. H. Blanks, M.D., of Meridian, Miss.

Report of a Case of Spinal Concussion, by John R. Page, M.D., of Birmingham, Ala.

Fractures of the Forearm, by John Brownrigg, M.D., of Columbus, Miss.

Some Practical Thoughts in Surgery, by James Guild, M.D., of Tuscaloosa, Ala.

Perineal Lacerations, by M. C. Baldridge, M.D., of Huntsville, Ala.

Electrolysis in the Treatment of Urethral Strictures, by S. M. Hogan, M.D., of Union Springs, Ala.

The Field and Limitation of Laparotomy, by I. S. Stone, M.D., of Lincoln, Va.

Operative Procedures in Hypertrophy of the Prostate, by R. D. Webb, M.D., of Birmingham, Ala.

Discussion on Abdominal Surgery, by Drs. John Herbert Claiborne, Duncan Eve, Paul F. Eve, W. T. Briggs and others.

The Association will convene in the hall of the Young Men's Christian Association, at 10 o'clock A.M., each day.

A Gift to the New York Pathological Society.—At a late meeting of the New York Pathological Society, Dr. G. C. Freeborn stated that Dr. J. M. DaCosta, of Philadelphia, the Middleton-Goldsmith lecturer for the present year, had declined to receive any compensation for his lecture and had requested the Society to apply the amount ($100) to any purpose which might seem desirable. The matter had been referred to the trustees, and they had decided that the most fitting tribute to Dr. DaCosta's generosity would be to purchase some microscopes for the use of the Society, and had requested the speaker to procure them. He had succeeded in getting two microscopes, one having an Abbé condenser and a one-fifth objective, the other having no condenser and being of a low power. The microscopes would be engraved with an inscription to the effect that they were the gift of Dr. DaCosta.—*Medical Record*, August 4, 1888.

Pasteur's Honors.—A calculation has been made of the number of decorations with which M. Pasteur has been honored by various Courts and States throughout the world. It seems that he is the owner of fifteen orders, of which only one is French. In addition he is an honorary doctor of all the great Universities of Europe, and a

member of eighty-three learned societies. Such a record as this is proof of the extent to which his work has been appreciated.

It has probably fallen to the lot of few *savants* to experience during their lifetime so full a recognition of their scientific labors as has occurred to M. Pasteur. The rewards of science are often tardy in their appearance, and their bestowal frequently comes too late in the day to be of any actual service. When, therefore, an exception to the rule occurs it is worthy of notice.—*Medical Press*, July 18, 1888.

The Value of Vaccination.—Zurich, according to a daily contemporary, is beginning to suffer from the effects of neglect of vaccination. Until 1883 a compulsory vaccination law was in force, but in that year it was repealed, the success of the anti-vaccinationists depending, it is said, upon the fact that not a single case of smallpox occurred in 1882. But in 1883, in every 1000 deaths, 2 were caused by smallpox; in 1884 there were 3 in every 1000; in 1885, 17; and in the first quarter of 1886 there were 85 deaths. While Europe is exhibiting folly by showing in some localities opposition to vaccination, Japan is deriving benefits from the recognition of its value. Nagasaki possesses a governor, named Kusaka, who is bent upon ridding the town of the diseases which formerly infested it. By means of a system of compulsory vaccination, rigorously enforced by the governor, smallpox, long a familiar scourge in the old town, has been practically stamped out.

Germany, too, is showing the effects of revaccination, and hitherto the freedom of German towns from smallpox has contrasted in a marked degree with a larger prevalence of this disease in other European towns where revaccination is not enforced. Probably the outcome of the experience of the present generation will be the enforcement of revaccination in the majority of civilized countries.—*Lancet*, July 21, 1888.

Recent Elections at the Royal Society.—Prof. Edmond Becquerel, of Paris; Prof. Hermann Kopp, of Heidelberg; Prof. Ed. F. W. Pflüger, of Bonn; and Prof. Julius Sachs, of Würzburg, have been elected foreign members of the Royal Society of London; the first, for his investigations into "The Influence of Light upon Matter, with Particular Reference to Phosphorescence;" the second, for his "Studies of Atomic Volumes and Boiling Points;" the third, for "Investigations in Physiology, with Especial Reference to the Irritability of Nerves, to Respiration and to Animal Heat;" and the last, for his "Investigations in Botany, particularly in Plant Physiology."

Adulteration of Tea.—A suit at law at Moscow, and various investigations, disclose that tea is being shamelessly adulterated. Of forty-four samples which were officially analyzed, four consisted of a mixture of tea and a certain kind of grass, four of the grass alone, and five of tea which had already once been used. In Moscow the police have found a number of barrels of sweepings intended for admixture with tea.—*Deutsche medizin. Wochenschr.*, June 28, 1888.

Liquid Paraffin in Cod-liver Oil.—It is now also reported from Russia that much of the cod-liver oil there has been adulterated with liquid paraffin, in some instances with as much as fifty per cent. Physically the adulterated oil cannot be distinguished from the pure.—*Pharmaceutical Record*, June 15, 1888.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM AUGUST 7 TO AUGUST 13, 1888.

KOERPER, EGON A., *Major and Surgeon* (U. S. Army).—Relieved from duty at Fort Keogh, Montana Territory, and ordered to duty at Fort Walla Walla, Washington Territory.—Par. 5, *S O. 175, A. G. O.*, July 30, 1888.

DEWITT, CALVIN, *Major and Surgeon* (U. S. Army).—Relieved from duty at Fort Sully, Dakota Territory, and ordered to duty at Fort Missoula, Montana Territory.—Par. 5, *S. O. 175, A. G. O.*, July 30, 1888.

CORSON, JOSEPH K., *Assistant Surgeon* (U. S. Army).—Leave of absence extended one month.—Par. 17, *S. O. 178, A. G. O.*, August 2, 1888.

HARVEY, PHILIP F., *Captain and Assistant Surgeon* (U. S. Army).—Relieved from duty as assistant to the attending surgeon at Washington, D. C., and ordered to duty at Fort Keogh, Montana Territory.—Par. 5, *S. O 175, A. G. O.*, July 30, 1888.

MERRILL, JAMES C., *Assistant Surgeon* (U. S. Army)—Granted one month's leave of absence from August 2, 1888.—Par. 7, *S. O. 178, A. G. O.*, August 2, 1888.

GARDINER, JOHN DEB W., *Assistant Surgeon* (U. S. Army).—Will, on the expiration of his present sick leave of absence, report in person to the commanding officer at Fort Leavenworth, Kansas, for duty.—Par. 4, *S.O. 178, A. G. O.*, August 2, 1888.

GORGAS, WILLIAM C., *Captain and Assistant Surgeon* (U. S. Army)—Granted leave of absence for one month, to take effect on being relieved from duty at Fort Randall, Dakota Territory.—Par. 4, *S. O. 177, A. G. O.*, August 1, 1888.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF THE MEDICAL CORPS OF THE U. S. NAVY, FOR THE WEEK ENDING AUGUST 4, 1888.

HUDSON, A., *Medical Inspector*—Detached from the "Trenton" and ordered home.

WHITE, C. H., *Surgeon.*—Ordered to the "Trenton," via Panama.

JARVIS, JOHN F., *Assistant Surgeon.*—Ordered to the Receiving Ship "Franklin."

BATES, N. L., *Medical Inspector.*—Detached from the "Richmond," and ordered to the "Pensacola."

ANDERSON, FRANK, *Passed Assistant Surgeon.*—Detached from the "Richmond," and ordered to the "Pensacola."

KITE, ISAAC W., *Assistant Surgeon.*—Detached from the "Richmond," and ordered to the "Pensacola."

JONES, W. H., *Surgeon.*—Detached from the "Pensacola," and ordered to the "Richmond."

STONE, E. P., *Assistant Surgeon.*—Detached from the "Pensacola," and ordered to the "Richmond."

MCCORMICK, A. M. D., *Assistant Surgeon.*—Ordered to special duty in the Bureau of Medicine and Surgery.

WIEBER, F. W. F., *Assistant Surgeon*—Reports arrival home, having been detached from the "Vandalia."

THE MEDICAL NEWS *will be pleased to receive early intelligence of local events of general medical interest, or of matters which it is desirable to bring to the notice of the profession.*

Local papers containing reports or news items should be marked.

Letters, whether written for publication or private information, must be authenticated by the names and addresses of their writers—of course not necessarily for publication.

All communications relating to the editorial department of the NEWS *should be addressed to No. 1004 Walnut Street, Philadelphia.*